RISK-BASED DETERMINATION FOR RESIDUAL PCB CONCENTRATIONS AND THIRD **MODIFICATION WORK**

PCBs are regulated under TSCA in addition to their regulation under other statutes. Under TSCA a Risk-Based Disposal Approval (RBDA) is an available option for cleanup of PCB remediation waste when the self-implementing cleanup and disposal standards of \$761.61(a). or the performance-based disposal requirements of §761.61(b), are not appropriate or suitable. As part of the Third Modification to the JFOS Order, JFC and Boeing anticipate extensive coordination with EPA to determine the most appropriate compliant approach to remaining JFOS work.

REFERENCES

U.S. Environmental Protection Agency (EPA). 2010. Administrative Order on Consent for Removal Action, Jorgensen Forge Outfall Site, with Jorgensen Forge Corporation, Boeing Company, and EPA. CERCLA Docket No. 10-2011-0017. November 9.

2013. Second Modification for Administrative Order on Consent for Removal Action, Jorgensen Forge Outfall Site, with Jorgensen Forge Corporation, Boeing Company, and EPA. CERCLA Docket No. 10-2011-0017. June 25.

Sincerely,

Miles Dyer

william.d.ernst william.d.ernst@boeing.com

Digitally signed by

@boeing.com cn=william.dernst@boeing.com

Date: 2014.10.03 16:34:19 -07'00'

William D. Ernst The Boeing Company

ATTACHMENTS:

Jorgensen Forge Corporation

Table 1 - Summary of SSP Residue Sample Analytical Results

Appendix A - Photographs

Appendix B - Laboratory Analytical Reports

Analytical Resources, Inc. Report No. YY33, dated Sept. 16, 2014 Analytical Resources, Inc. Report No. YZ49, dated Sept. 23, 2014 Analytical Resources, Inc. Report No. YY75, dated Sept. 23, 2014 Analytical Resources, Inc. Report No. ZA03, dated Sept. 26, 2014 Analytical Resources, Inc. Report No. ZA04, dated Sept. 26, 2014

Appendix C – Data Validation Report

USEPA SF 1472468



ALUMINUM - TITANIUM - SPECIALTY STEELS

8531 EAST MARGINAL WAY SOUTH SEATTLE, WASHINGTON 98108

PHONE (206) 762-1100

FAX (206) 763-0848

October 3, 2014

United States Environmental Protection Agency Region 10 1200 Sixth Avenue, Suite 900 Seattle, WA 98101-3140 Attn: Ravi Sanga

SUBJECT:

SUPPLEMENTAL REMOVAL ACTION COMPLETION REPORT

JORGENSEN FORGE OUTFALL SITE

SEATTLE, WASHINGTON

CERCLA DOCKET NO. 10-2011-0017, SECOND MODIFICATION

Dear Mr. Sanga:

This report has been prepared on behalf of Jorgensen Forge Corporation (JFC) and The Boeing Company (Boeing) (together as JFC/Boeing) pursuant to the *Second Modification to the Administrative Order on Consent for Removal Action* (Order) at the Jorgensen Forge Outfall Site (Second Modification; EPA 2013), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Docket No. 10-2011-0017, signed by JFC, Boeing, and the U.S. Environmental Protection Agency (EPA) on June 25, 2013 (EPA 2010).

The purpose of this Supplemental Removal Action Completion Report is to document the final work completed under the Order's Second Modification and describe variances, if any, from plan. The work documented in this report includes the extraction, decontamination, and interim storage of the steel sheet piling (SSP) panels used to construct the cofferdam structure. Installation of the cofferdam structure itself was documented to EPA in the *Interim Removal Action Report - Cofferdam Installation* by SoundEarth Strategies, Inc. (SoundEarth), dated April 7, 2014. Specifically, this report describes in the general order of occurrence:

- The extraction of SSP panels following work by Earle M. Jorgensen (EMJ) in the SSP cofferdam;
- Measures undertaken to decontaminate the black residue that formed on the upper portion of the SSP inside the cofferdam;
- Sampling of the silty-sand material that adhered to the bottoms of the extracted SSP panels;
- The staging of extracted SSP panels inside the Jorgensen Forge Outfall Site (JFOS) project area; and,

 Current and proposed actions and temporary storage measures for the extracted SSP panels in consideration of the Third Modification to the Order.

SHEETPILE EXTRACTION

Following installation of the cofferdam structure in February 2014 (as described in the JFOS Interim Completion Report), in-water dredging of contaminated bank sediment and subsequent backfill placement in the cofferdam was performed by EMJ contractor Pacific Pile & Marine (PPM) in mid-August 2014. During this work an oily sheen observed on the water surface within the cofferdam led to the formation of a one- to two-foot high patchy band of black residue near the top of the inward-facing SSP cofferdam walls. Rapid backfilling by EMJ/PPM caused overtopping of the cofferdam walls and loss of some of the sheen to the Waterway. A sample of the sheen collected downstream from the cofferdam by EMJ and the results were reported to EPA in connection with Jorgensen Forge Early Action Area (JFEAA) project, under EPA Docket No. 10-2013-0032.

Following backfilling, SSP extraction was expedited by the same contractor PPM, working for JFC/Boeing, in order to quickly vacate the area and minimize interference with EMJ project work. Accordingly, the three in-water SSP walls of the cofferdam were extracted between August 28 and 30 by PPM using a barge-mounted crane and transferred to a dredge spoils barge made available by the EMJ/PPM project team. On-shore decontamination was not an option due to EMJ's concurrent removal action project.

The extraction process began with an SSP panel extracted from the middle of the west cofferdam wall, and included the use of a hydraulic vibratory hammer to first pull each SSP panel up approximately 40 feet to a point where the bottoms of the panels were seated approximately 10 to 15 feet below the mudline of the backfill. At this height, friction at the spline interlock between the SSP panels was sufficient to minimize the extent to which a partially extracted panel would sink back down through the backfill, while still allowing the vibratory hammer to be removed. The extraction tooling was changed out on the crane, and a device with lifting plugs was attached to the top of the SSP, with the panel settling several feet under its own weight during the equipment change. With lifting plugs in place, the panel was then lifted clear of the adjacent SSP panels in the cofferdam wall and placed on the adjacent barge, where decontamination of the black residue was performed. The equipment change is evident in the amount of silty sand material visibly adhered to the lower portions of the SPP panels. The three in-water cofferdam walls were removed, and the east, upland wall of the cofferdam was left in place in preparation for future implementation of an upland removal action under the Third Modification. Photographs of the SSP panel extraction process are included in Appendix A.

DECONTAMINATION AND SAMPLING OF BLACK RESIDUE

During in-water dredging of bank sediment, a black residue about two feet in height formed at the waterline on the inside faces of the cofferdam. To decontaminate the residue on the SSP prior to storage, each SSP panel bottom was positioned by crane on the barge bottom and then laid down on timbers. The black residue band was decontaminated by wiping the residue using a solvent-soaked rag. After decontamination, one sample was taken from a representative panel from each in-water SSP wall, for a total of three samples. SoundEarth collected the samples in accordance with SoundEarth's Sampling and Analysis Procedures for Sheetpile Residue Memorandum dated August 7, 2014, and e-mail correspondence between JFC and EPA dated August 21, 2014. (A sample of the residue prior to decontamination was not collected in the mistaken belief that only post-decontamination samples would be of interest.)

PCB concentrations in the wipe samples ranged from 48 to 209 micrograms per 100 square centimeters ($\mu g/100~cm^2$), indicating some contamination remained from the residue, which, following cleaning, had the appearance of a faded black stain on the extracted SSP. Results are summarized on Table 1. Laboratory reports are included in Appendix B. A data validation report is included in Appendix C.

Decontamination of the black residue on the upland SSP wall that remains in place was performed when access to the residue was available from the backfilled bank surface exposed at low tide. On September 10, SoundEarth collected a pre-decontamination wipe sample (SSP-E_20140910) of this residue. A second wipe sample (SSP-C-20140912) was taken by Soundearth on September 12 after PPM performed further decontamination of the residue. Given the prior results of the in-water SSP residue, greater emphasis was given on the decontamination process, which was made more difficult by the residue being on the vertical face of the SSP. The pre-decontamination wipe sample indicated PCBs were present in the residue at 1,160 μ g/100 cm², and the post-decontamination sample results indicated that decontamination reduced PCB concentrations in the black residue area to 61 μ g/100 cm². Immediately following collection of the post-decontamination sample, EMJ/PPM completed the placement of backfill material on the bank against the remaining SSP wall.

UPLANDS STAGING OF EXTRACTED SSP PANELS

Following SSP decontamination on the barge, PPM transferred the SSP panels to the JFOS boundaries behind (landward of) the upland SSP wall. PPM placed the extracted SSP panels on timbers in two stacks and double-wrapped the panels in 20 mil plastic sheeting with straw wattles as a temporary isolation protective measure. Black plastic is scheduled to be placed over the existing plastic sheeting during the week of 6-10 October and tied down in the same configuration. Placement of the SSP panels inside the JFOS boundary was coordinated with and approved by EPA following concerns raised by the EMJ project team that SSP stored in that area might interfere with the EMJ project. Placement in this area met multiple objectives by minimizing time otherwise necessary for SSP transport from PPM's barge to the closest available and suitable upland area, minimizing the potential for cross-contamination with the EMJ project area, and minimizing possible schedule impacts on the EMJ project given that PPM' resources had to simultaneously support both the EMJ and JFC/Boeing projects.

SAMPLING OF ADHERED SILTY-SAND MATERIAL

A relatively small amount of silty sand that had variably adhered to the bottom two or three feet of the SSP during extraction was noted by EPA following stacking in the JFOS area. Upon closer inspection, this material was discontinuous (spotty) in coverage and forming a thin veneer with the visual appearance of concrete but that easily scraped off where present. EPA requested a plan be submitted to sample the adhered material. JFC/Boeing miscommunicated EPA's request to SoundEarth, however, such that SoundEarth instead sampled the material from a flat surface on September 11 and from the spline of an SSP panel on September 12. Photographs #7 through #15 in Appendix A feature the SSP panel surfaces where samples were collected. Each sample was collected by scraping the adhered material into a sample jar.

The total PCB concentration in the flat SSP surface sample was 6.4 mg/kg. The total PCB concentration in the SSP spline sample was 13.3 mg/kg. In attempting to construct a conceptual site model to explain these results, it may be significant to note that the total PCB concentration in the post-dredge, pre-backfill sample collected by EMJ from the bottom of the cofferdam was approximately 13 mg/kg (reported under separate cover in connection with the JFEAA Removal Action Completion Report), and the Aroclor mixture between the samples is also closely comparable. Although not definitive, it may be inferred that the expedited backfilling

by EMJ (described above) allowed residual post-dredge contamination to be dispersed in the lower portions of the cofferdam hole during backfilling, such that the SSP panels came in contact with the contaminated sand backfill during the extraction process allowing backfill material to adhere to the bottoms of the SSP panels and splines. Lift pins drag the SSP panels through the backfill material with considerable friction, in contrast to the hammer lift method, which with vibration breaks the surface tension and liquefies the material adjacent to the SSP surface.

It is suggested that if EPA desires further sampling of this material to ensure proper documentation, the temporary plastic shroud over the SSP would be peeled back to allow access for sampling, after which the final coverings would be installed for storage over the winter as described below.

TEMPORARY PROTECTIVE STORAGE MEASURES AND PROPOSED INTERIM STORAGE PLAN

The storage location of the SSP panels within the JFOS is on industrial property with suitable restricted access. The SSP panels are on timbers to limit contact with the ground surface, and the stacks are temporarily covered with double layer 20 mil clear plastic sheeting to prevent contact with rainfall while final protective measures are planned with EPA. The plastic sheeting is weighted with dunnage and sandbags, and the downgradient perimeter is circled with straw wattles to control the flow of stormwater off the covered SSP stacks.

JFC/Boeing intend to cover the material with an additional layer of black reinforced plastic to provide resistance to UV degradation, and maintain the area including the plastic and straw waddles throughout the winter until that area is remediated in 2015 by JFC/Boeing in anticipation of the pending Third Modification to the JFOS Order.

JFOS ORDER THIRD MODIFICATION IMPLEMENTATION

It is anticipated the last activity required under the JFOS removal action will be in support of the excavation and proper disposal of PCB-contaminated soil, including that presently under the stored SSP panels. JFC/Boeing commit to this action in 2015 following execution of the Third Order Modification. Reuse of the extracted SSP panels is likely for this activity pending the finalization of the shoring and excavation design, which is currently underway by JFC/Boeing.

JFC/Boeing suggest that should EPA determine the extracted SSP panels must be fully decontaminated before such reuse, the SSP would most appropriately be decontaminated as required as part of JFOS field mobilization in 2015. Decontamination at that time would be accomplished in accordance with 40 CFR Chapter 1, Subpart R, Part 761, Subpart D, Section 761.79, Decontamination Standards and Procedures for PCBs, followed by necessary sampling and disposal consistent with TSCA requirements. It is suggested the means proposed above by which the extracted SSP panels would be stored and prepared for reuse represent a suitably conservative approach for managing the human and environmental safety, risks and issues involved.

RISK-BASED DETERMINATION FOR RESIDUAL PCB CONCENTRATIONS AND THIRD MODIFICATION WORK

PCBs are regulated under TSCA in addition to their regulation under other statutes. Under TSCA a Risk-Based Disposal Approval (RBDA) is an available option for cleanup of PCB remediation waste when the self-implementing cleanup and disposal standards of §761.61(a), or the performance-based disposal requirements of §761.61(b), are not appropriate or suitable. As part of the Third Modification to the JFOS Order, JFC and Boeing anticipate extensive coordination with EPA to determine the most appropriate compliant approach to remaining JFOS work.

REFERENCES

U.S. Environmental Protection Agency (EPA). 2010. Administrative Order on Consent for Removal Action, Jorgensen Forge Outfall Site, with Jorgensen Forge Corporation, Boeing Company, and EPA. CERCLA Docket No. 10-2011-0017. November 9.

. 2013. Second Modification for Administrative Order on Consent for Removal Action, Jorgensen Forge Outfall Site, with Jorgensen Forge Corporation, Boeing Company, and EPA. CERCLA Docket No. 10-2011-0017. June 25.

Sincerely,

william.d.ernst william.d.ernst@boeing.com

Digitally signed by DN:

@boeing.com cn=william.d.ernst@boeing.com Date: 2014.10.03 16:34:19 -07'00'

Miles Dyer Jorgensen Forge Corporation William D. Ernst The Boeing Company

ATTACHMENTS:

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Appendix C – Data Validation Report

TABLE



TABLE 1 SUMMARY OF SSP RESIDUE SAMPLE ANALYTICAL RESULTS

JORGENSEN FORGE OUTFALL SITE SECOND MODIFICATION, PHASE 4A SEATTLE, WASHINGTON CERCLE DOCKET NO. 10-2011-0017

	RESIDUE WIPE SAMPLES					
SAMPLE ID	DATE	LOCATION	SAMPLES COLLECTED BEFORE/AFTER DECONTAMINATION	TOTAL PCBs ⁽¹⁾ (μg/100 cm ²)		
SSP-W-20140829	8/29/2014	WEST WALL OF COFFERDAM	AFTER	87		
SSP-S-20140829	8/29/2014	SOUTH WALL OF COFFERDAM	AFTER	209		
SSP-N-20140829	8/29/2014	NORTH WALL OF COFFERDAM	AFTER	48		
SSP-E-20140910	9/10/2014	EAST WALL OF COFFERDAM	BEFORE	1,160		
SSP-C-20140912	9/12/2014	EAST WALL OF COFFERDAM	AFTER	61		

		SOLID SAMPLES		
SAMPLE ID	DATE	LOCATION	SAMPLES COLLECTED BEFORE/AFTER DECONTAMINATION	TOTAL PCBs ⁽¹⁾ (μg/kg dry wt)
SSP-SOLIDS-20140911	9/11/2014	FACE, BOTTOM OF EXTRACTED SSP PANEL	AFTER	6,400
SSP-SOLIDS-20140912	9/12/2014	SPLINE, BOTTOM OF EXTRACTED SSP PANEL	AFTER	13,300

NOTES:

Laboratory analysis by Analytical Resources, Inc. of Tukwila, Washington ⁽¹⁾PCBs by EPA Method 8082A, Nine Aroclors (1016, 1242, 1248, 1254, 2160, 1221, 1232, 1262, and 1268)

ABBREVIATIONS:

PCBs = Polychlorinated biphenyls

APPENDIX A PHOTOGRAPHS



Photograph 1. Using vibrating hammer to extract SSP panels from the south cofferdam wall. Viewing southwest.



Photograph 2. Extracting SSP panels from the southwest, inwater side of the former cofferdam. Viewing north.



Photograph 3. SSP being laid onto the decontamination barge by lifting plugs, without the vibrating hammer.



Photograph 4. Staging extracted SSP panels on the decontamination barge for cleaning.



Photograph 5. PP&M crew on the decontamination barge, scrubbing the black residue zone on an SSP panel.



Photograph 6. SSP panel on decontamination barge. Note face and spline at top of SSP panel are free of bank material.

Page 1 of 4



EPA Docket No.: Date:

September 30, 2014 DHG Drawn By:

DHG

10-2011-0017

Chk By: File ID:

0995-001-08_SSP Removal_Photos

SSP PANEL REMOVAL PHOTOGRAPHS

Jorgensen Forge Outfall Site 8531 E. Marginal Way S. Seattle, Washington



Photograph 7. Chalk-mark indicates location of residue wipe sample and black residue, relative to top edge of panel.



Photograph 8. Marking the residue wipe sample area. Note spline is free of bank material.



Photograph 9. Close-up view of SSP wipe sample (SSP-N-20140829).



Photograph 10. SSP wipe sample location in background along with redundant labeling. Note spline is free of bank material.





EPA Docket No.: Date:

10-2011-0017

Drawn By:

September 30, 2014 DHG

Chk By:

DHG File ID: 0995-001-08_SSP Removal_Photos SSP PANEL REMOVAL PHOTOGRAPHS

Jorgensen Forge Outfall Site 8531 E. Marginal Way S. Seattle, Washington



Photograph 11. Chalk-mark outlines 100 cm² area of residue sample SSP-E-20140910, on the east SSP wall (PRE-Decon).



Photograph 12. Chalk-mark outlines 100 cm² area of residue sample SSP-C-20140912, on the east SSP wall (POST-Decon). Outline of PRE-decon sample location visible in shadow at left.



Photograph 13. Bottoms of decontaminated SSP panels staged on dunnage and under plastic at JFOS. Sample areas marked with chalk.



Photograph 14. Close-up of Photograph 9 showing silty sand material at sample locations SSP-SOLIDS-2014-0911 and spline sample area SSP-SOLIDS-20140912.



EPA Docket No.:

10-2011-0017

Date: Drawn By: September 30, 2014 DHG

Chk By:

DHC

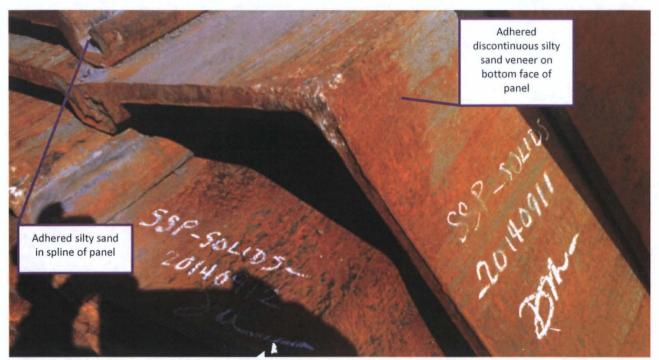
File ID:

0995-001-08_SSP Removal_Photos

Page 3 of 4 SSP PANEL REMOVAL

Jorgensen Forge Outfall Site 8531 E. Marginal Way S. Seattle, Washington

PHOTOGRAPHS



Photograph 15. Close-up photograph of sample locations SSP-SOLIDS-20140911 (veneer/crust) and SSP-SOLIDS-20140912 (spline). Silty sand material forms discontinuous veneer at bottoms of extracted SSP panels. Material adhered in spline was gouged out to collect sample for analysis.



Photograph 16. Extracted SSP panels staged at JFOS under weighted plastic sheeting. Viewing northwest.

Page 4 of 4



EPA Docket No.:

10-2011-0017

Date: September 30, 2014

Drawn By: DHG Chk By:

DHG

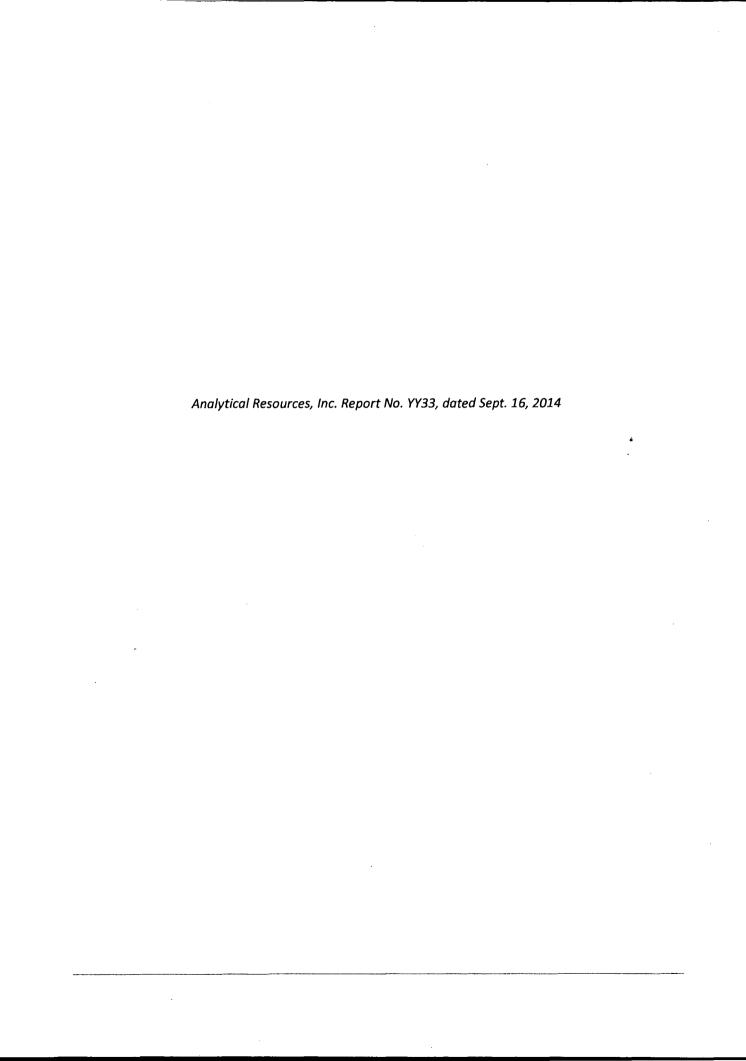
File ID:

0995-001-08_SSP Removal_Photos

SSP PANEL REMOVAL PHOTOGRAPHS

Jorgensen Forge Outfall Site 8531 E. Marginal Way S. Seattle, Washington

APPENDIX B
ANALYTICAL REPORTS





9 September 2014

Miles Dyer Jorgensen Forge Corporation 8531 East Marginal Way South Seattle, WA 98108

RE: JFOS Sheet Pile, 0995

ARI Job No.: YY33

Dear Miles:

Please find enclosed the original Chain-of-Custody (COC) record, sample receipt documentation, and the final data for the samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted three wipe samples on August 29, 2014. For further details regarding sample receipt please refer to the enclosed Cooler Receipt Form.

The samples were analyzed for PCBs as requested.

There were no anomalies associated with the analyses of these samples.

An electronic copy of this report and all supporting raw data will remain on file with ARI. Should you have any questions regarding these results, please feel free to contact me at your convenience.

Respectfully,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com
www.arilabs.com

cc: Dee Gardner, Sound Earth, Inc. eFile YY33

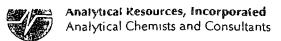
Enclosures

Chain of Custody Record & Laboratory Analysis Request

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Client Contact:			14.146		No. of Coolers	No. of Cooler Coolers: 17.3			7	206-695-6200 206-695-6201 (fa www.arilabs.com			
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Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or cosigned agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



Cooler Receipt Form

	_ \ \	eadspace → "hs" (>6 mm)	- 			
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Do any of the analyses (bottles) require preservation	• •	,		YES	NO	
Were all bottles used correct for the requested ana	•			YES	NO	
Old all bottle labels and tags agree with custody pa	•			(ES)	NO	
Did the number of containers listed on COC match				(ES)	NO	
Vere all bottle labels complete and legible?				YÉS	ИО	
Old all bottles arrive in good condition (unbroken)?	,		•	YES)	NO	
Vere all bottles sealed in individual plastic bags?				YES	No	
Vas sufficient ice used (if appropriate)?			NA.	(YES,	NO	
What kind of packing material was used?	Bupple Wrap V	et Joe Gel Packs Baggies Fo	oam Block Paper C		2 00	
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ssigned ARI Job No	<u>-</u>	Tracking No			(N	
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RI Client: \(\frac{1}{2}\)CYGENSE(1) FUIGO OC No(s).	(NA)	Delivered by Fed-Ex UPS	Courier mana Deirv	Aren Lither		

0016F 3/2/10

Cooler Receipt Form

Revision 014

Sample ID Cross Reference Report

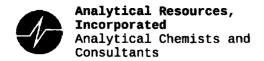


ARI Job No: YY33 Client: Jorgensen Forge Project Event: 0995

Project Name: JFOS Sheet Pile

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	SSP-W-20140829	YY33A	14-17799	Wipe	08/29/14 07:40	08/29/14 12:50
2.	SSP-S-20140829	YY33B	14-17800		08/29/14 08:25	08/29/14 12:50
3.	SSP-N-20140829	YY33C	14-17801		08/29/14 09:30	08/29/14 12:50

Printed 08/29/14 Page 1 of 1



Data Reporting Qualifiers Effective 12/31/13

Inorganic Data

- U Indicates that the target analyte was not detected at the reported concentration
- * Duplicate RPD is not within established control limits
- B Reported value is less than the CRDL but ≥ the Reporting Limit
- N Matrix Spike recovery not within established control limits
- NA Not Applicable, analyte not spiked
- H The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
- L Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

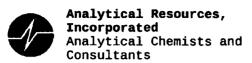
- U Indicates that the target analyte was not detected at the reported concentration
- * Flagged value is not within established control limits
- B Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
- J Estimated concentration when the value is less than ARI's established reporting limits
- D The spiked compound was not detected due to sample extract dilution
- E Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Laboratory Quality Assurance Plan

Page 1 of 3

Version 14-003 12/31/13

YY33: 00005



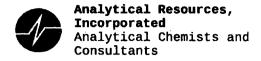
- Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).
- S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
- NA The flagged analyte was not analyzed for
- NR Spiked compound recovery is not reported due to chromatographic interference
- NS The flagged analyte was not spiked into the sample
- M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
- Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.
- EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" (Dioxin/Furan analysis only)
- C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
- P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference
- X Analyte signal includes interference from polychlorinated diphenyl ethers. (Dioxin/Furan analysis only)
- Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. (Dioxin/Furan analysis only)

Laboratory Quality Assurance Plan

Page 2 of 3

Version 14-003 12/31/13

YY33:00006



Geotechnical Data

- A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
- F Samples were frozen prior to particle size determination
- SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
- SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
- W Weight of sample in some pipette aliquots was below the level required for accurate weighting



ORGANICS ANALYSIS DATA SHEET PCB by GC/ECD Method SW8082A Extraction Method: SW3580A

Page 1 of 1

Lab Sample ID: MB-090214

LIMS ID: 14-17799

Matrix: Wipe

Data Release Authorized: NW Reported: 09/09/14

Date Extracted: 09/02/14 Date Analyzed: 09/06/14 18:55 Instrument/Analyst: ECD7/JGR

GPC Cleanup: No Sulfur Cleanup: No Acid Cleanup: Yes

Sample ID: MB-090214 METHOD BLANK

QC Report No: YY33-Jorgensen Forge

Project: JFOS Sheet Pile

0995

Date Sampled: NA Date Received: NA

Sample Amount: 1.00 Wipe Final Extract Volume: 10 mL

Dilution Factor: 1.00 Silica Gel: Yes

CAS Number	Analyte		RL	Result
12674-11-2 53469-21-9 12672-29-6 11097-69-1 11096-82-5 11104-28-2 11141-16-5	Aroclor 1016 Aroclor 1242 Aroclor 1248 Aroclor 1254 Aroclor 1260 Aroclor 1221 Aroclor 1232	•	1.0 1.0 1.0 1.0 1.0	< 1.0 U
37324-23-5 11100-14-4	Aroclor 1262 Aroclor 1268		1.0	< 1.0 U < 1.0 U

Reported in Total µg

PCB Surrogate Recovery

Decachlorobiphenyl	89.5%
Tetrachlorometaxylene	81.2%

ORGANICS ANALYSIS DATA SHEET PCB by GC/ECD Method SW8082A Extraction Method: SW3580A

Page 1 of 1

Lab Sample ID: YY33A LIMS ID: 14-17799

Matrix: Wipe

Data Release Authorized:

Reported: 09/09/14

Date Extracted: 09/02/14 Date Analyzed: 09/06/14 20:00 Instrument/Analyst: ECD7/JGR

GPC Cleanup: No Sulfur Cleanup: No Acid Cleanup: Yes QC Report No: YY33-Jorgensen Forge

SAMPLE

Project: JFOS Sheet Pile

0995

Date Sampled: 08/29/14
Date Received: 08/29/14

Sample Amount: 1.00 Wipe Final Extract Volume: 10 mL Dilution Factor: 1.00

Silica Gel: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	1.0	< 1.0 U
53469-21-9	Aroclor 1242	1.0	< 1.0 U
12672-29-6	Aroclor 1248	20	< 20 YE
11097-69-1	Aroclor 1254	1.0	50 E
11096-82-5	Aroclor 1260	1.0	18 E
11104-28-2	Aroclor 1221	1.0	< 1.0 U
11141-16-5	Aroclor 1232	1.0	< 1.0 U
37324-23-5	Aroclor 1262	1.0	< 1.0 U
11100-14-4	Aroclor 1268	1.0	< 1.0 U

Reported in Total µg

PCB Surrogate Recovery

Decachlorobiphenyl	107%
Tetrachlorometaxylene	87.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET PCB by GC/ECD Method SW8082A Extraction Method: SW3580A Page 1 of 1

Lab Sample ID: YY33A LIMS ID: 14-17799

Matrix: Wipe

Matrix: wipe
Data Release Authorized:

Reported: 09/09/14

Date Extracted: 09/02/14 Date Analyzed: 09/08/14 13:39 Instrument/Analyst: ECD7/JGR

GPC Cleanup: No Sulfur Cleanup: No Acid Cleanup: Yes

Sample ID: SSP-W-20140829

DILUTION

QC Report No: YY33-Jorgensen Forge

Project: JFOS Sheet Pile

0995

Date Sampled: 08/29/14 Date Received: 08/29/14

Sample Amount: 1.00 Wipe Final Extract Volume: 10 mL Dilution Factor: 20.0

S

Dilution	ractor:	20
Sili	.ca Gel:	Ye

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	4.0	< 4.0 U
53469-21-9	Aroclor 1242	4.0	< 4.0 U
12672-29-6	Aroclor 1248	30	< 30 Y
11097-69-1	Aroclor 1254	4.0	68
11096-82-5	Aroclor 1260	4.0	' 19
11104-28-2	Aroclor 1221	4.0	- < 4.0 U
11141-16-5	Aroclor 1232	4.0	< 4.0 U
37324-23-5	Aroclor 1262	4.0	< 4.0 U
11100-14-4	Aroclor 1268	4.0	< 4.0 U

Reported in Total µg

PCB Surrogate Recovery

Decachlorobiphenyl	109%
Tetrachlorometaxylen	e 108%

YY33:00010

ORGANICS ANALYSIS DATA SHEET PCB by GC/ECD Method SW8082A Extraction Method: SW3580A

Page 1 of 1

Lab Sample ID: YY33B LIMS ID: 14-17800

Matrix: Wipe
Data Release Authorized:

Reported: 09/09/14

Date Extracted: 09/02/14 Date Analyzed: 09/06/14 20:22 Instrument/Analyst: ECD7/JGR

GPC Cleanup: No Sulfur Cleanup: No Acid Cleanup: Yes Sample ID: SSP-S-20140829 SAMPLE

QC Report No: YY33-Jorgensen Forge Project: JFOS Sheet Pile

0995

Date Sampled: 08/29/14 Date Received: 08/29/14

Sample Amount: 1.00 Wipe Final Extract Volume: 10 mL Dilution Factor: 1.00

Silica Gel: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	1.0	< 1.0 U
53469-21-9	Aroclor 1242	1.0	< 1.0 U
12672-29-6	Aroclor 1248	30	< 30 YE
11097-69-1	Aroclor 1254	1.0	150 E
11096-82-5	Aroclor 1260	1.0	48 E
11104-28-2	Aroclor 1221	1.0	< 1.0 U
11141-16-5	Aroclor 1232	1.0	< 1.0 U
37324-23-5	Aroclor 1262	1.0	< 1.0 U~~
11100-14-4	Aroclor 1268	1.0	< 1.0 U

Reported in Total µg

PCB Surrogate Recovery

Decachlorobiphenyl	87.0%
Tetrachlorometaxylene	90.5%



ORGANICS ANALYSIS DATA SHEET PCB by GC/ECD Method SW8082A Extraction Method: SW3580A

Page 1 of 1

Lab Sample ID: YY33B LIMS ID: 14-17800

Matrix: Wipe

Data Release Authorized: WW Reported: 09/09/14

Date Extracted: 09/02/14 Date Analyzed: 09/08/14 14:01 Instrument/Analyst: ECD7/JGR

GPC Cleanup: No Sulfur Cleanup: No Acid Cleanup: Yes

DILUTION

QC Report No: YY33-Jorgensen Forge

Project: JFOS Sheet Pile

0995

Date Sampled: 08/29/14 Date Received: 08/29/14

Sample Amount: 1.00 Wipe

Final Extract Volume: 10 mL Dilution Factor: 40.0

Silica Gel: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	8.0	< 8.0 U
53469-21-9	Aroclor 1242	8.0	< 8.0 U
12672-29-6	Aroclor 1248	8.0	< 8.0 U
11097-69-1	Aroclor 1254	8.0	160
11096-82-5	Aroclor 1260	8.0	49
11104-28-2	Aroclor 1221	8.0	< 8.0 U
11141-16-5	Aroclor 1232	8.0	< 8.0 U
37324-23-5	Aroclor 1262	8.0	< 8.0 U
11100-14-4	Aroclor 1268	8.0	< 8.0 U

Reported in Total µg

PCB Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxvlene	D

FORM I

SIGGO:SEYY

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET PCB by GC/ECD Method SW8082A Extraction Method: SW3580A

Page 1 of 1

Lab Sample ID: YY33C LIMS ID: 14-17801

Matrix: Wipe

Data Release Authorized:

Reported: 09/09/14

Date Extracted: 09/02/14 Date Analyzed: 09/06/14 20:44 Instrument/Analyst: ECD7/JGR

GPC Cleanup: No Sulfur Cleanup: No Acid Cleanup: Yes

Sample ID: SSP-N-20140829

SAMPLE

QC Report No: YY33-Jorgensen Forge

Project: JFOS Sheet Pile

0995

Date Sampled: 08/29/14 Date Received: 08/29/14

Sample Amount: 1.00 Wipe Final Extract Volume: 10 mL

Dilution Factor: 1.00 Silica Gel: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	1.0	< 1.0 U
53469-21-9	Aroclor 1242	1.0	< 1.0 U
12672-29-6	Aroclor 1248	8.0	< 8.0 Y
11097-69-1	Aroclor 1254	1.0	33 E
11096-82-5	Aroclor 1260	1.0	9.2
11104-28-2	Aroclor 1221	1.0	< 1.0 U
11141-16-5	Aroclor 1232	1.0	< 1.0 U
37324-23-5	Aroclor 1262	1.0	< 1.0 U
11100-14-4	Aroclor 1268	1.0	< 1.0 U

Reported in Total µg

PCB Surrogate Recovery

Decachlorobiphenyl	101%
Tetrachlorometaxylene	84.5%

FORM I

YY33:00013



ORGANICS ANALYSIS DATA SHEET PCB by GC/ECD Method SW8082A Extraction Method: SW3580A

Page 1 of 1

Lab Sample ID: YY33C LIMS ID: 14-17801

Matrix: Wipe

Data Release Authorized:

Reported: 09/09/14

Date Extracted: 09/02/14 Date Analyzed: 09/08/14 14:23 Instrument/Analyst: ECD7/JGR

GPC Cleanup: No Sulfur Cleanup: No Acid Cleanup: Yes

Sample ID: SSP-N-20140829

DILUTION

QC Report No: YY33-Jorgensen Forge

Project: JFOS Sheet Pile

0995

Date Sampled: 08/29/14 Date Received: 08/29/14

Sample Amount: 1.00 Wipe Final Extract Volume: 10 mL

Dilution Factor: 10.0 Silica Gel: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	2.0	< 2.0 U
53469-21-9	Aroclor 1242	2.0	< 2.0 U
12672-29-6	Aroclor 1248	10	< 10 Y
11097-69-1	Aroclor 1254	2.0	37
11096-82-5	Aroclor 1260	2.0	11
11104-28-2	Aroclor 1221	2.0	< 2.0 U
11141-16-5	Aroclor 1232	2.0	< 2.0 U
37324-23-5	Aroclor 1262	2.0	< 2.0 U
11100-14-4	Aroclor 1268	2.0	< 2.0 U

Reported in Total µg

PCB Surrogate Recovery

Decachlorobiphenyl	131%
Tetrachlorometaxylene	88.5%

FORM I

YY33:00014



16 September 2014

Miles Dyer Jorgensen Forge Corporation 8531 East Marginal Way South Seattle, WA 98108

RE: JFOS Sheet Pile, 0995

ARI Job No.: YY33

Dear Miles:

Please find enclosed the additional deliverables for the samples from the project referenced above.

It was discovered that the results for the LCS and the corresponding surrogate recovery form were missing from the original report.

An electronic copy of these forms will remain on file with ARI. Should you have any questions regarding this submission, please feel free to contact me at your convenience.

Respectfully,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com
www.arilabs.com

cc: Dee Gardner, Sound Earth, Inc. eFile YY33

Enclosures



ORGANICS ANALYSIS DATA SHEET PCB by GC/ECD Method SW8082A Page 1 of 1

Lab Sample ID: LCS-090214

LIMS ID: 14-17799

Matrix: Wipe

Data Release Authorized:

Reported: 09/09/14

Date Extracted: 09/02/14
Date Analyzed: 09/06/14 19:16
Instrument/Analyst: ECD7/JGR

GPC Cleanup: No Sulfur Cleanup: No Acid Cleanup: Yes Sample ID: LCS-090214 LAB CONTROL

QC Report No: YY33-Jorgensen Forge

Project: JFOS Sheet Pile

0995

Date Sampled: 08/29/14
Date Received: 08/29/14

Sample Amount: 1.00 Wipe Final Extract Volume: 10 mL

Dilution Factor: 1.00 Silica Gel: Yes

Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Aroclor 1016	4.30	5.00	86.0%
Aroclor 1260	4.71	5.00	94.2%

PCB Surrogate Recovery

Decachlorobiphenyl	93.8%
Tetrachlorometaxylene	82.5%

Reported in Total µg

FORM III

YY33:00002



SW8082/PCB SURROGATE RECOVERY SUMMARY

Matrix: Wipe

QC Report No: YY33-Jorgensen Forge Project: JFOS Sheet Pile

0995

Client ID	DCBP	TCMX	TOT OUT
	-		
MB-090214	89.5%	81.2%	0
LCS-090214	93.8%	82.5%	0
SSP-W-20140829	107%	87.8%	0
SSP-W-20140829 DL	109%	108%	0
SSP-S-20140829	87.0%	90.5%	0
SSP-S-20140829 DL	D	D	0
SSP-N-20140829	101%	84.5%	0
SSP-N-20140829 DL	131%	88.5%	0

LCS/MB	LIMITS	QC	LIMITS
--------	--------	----	--------

(DCBP) = Decachlorobiphenyl (TCMX) = Tetrachlorometaxylene

(30-160)

(30-160)

(30-160)

(30-160)

Prep Method: SW3580A

Log Number Range: 14-17799 to 14-17801





23 September 2014

Miles Dyer Jorgensen Forge Corporation 8531 East Marginal Way South Seattle, WA 98108

RE: JFOS Sheet Pile, 0995

ARI Job No.: YZ49

Dear Miles:

Please find enclosed the original Chain-of-Custody (COC) record, sample receipt documentation, and the final data for the sample from the project referenced above. Analytical Resources, Inc. (ARI) accepted one wipe sample on September 10, 2014. For further details regarding sample receipt please refer to the enclosed Cooler Receipt Form.

The sample was analyzed for PCBs as requested.

The percent difference (%D) for Aroclor 1254 was high for one column for the CCAL that bracketed the dilution of this sample. This column was used for confirmation only. The data from the primary column was used for quantitation.

There were no further anomalies associated with the analyses of this sample.

An electronic copy of this report and all supporting raw data will remain on file with ARI. Should you have any questions regarding these results, please feel free to contact me at your convenience.

Respectfully,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210

markh@arilabs.com

www.arilabs.com

cc: Dee Gardner, Sound Earth, Inc. Mingta Lin, Pyron Envurinmental eFile YZ49

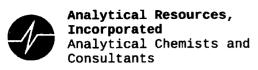
Enclosures

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: Turn-around Requested: 1249 5 to Lond					Page: of						Analytical Resources, Incorporated Analytical Chemists and Consultants 4611 South 134th Place, Suite 100				
ARI Client Company: Phone:					Date: Ice Prese			ent? \)				Tukwila, WA 98168 206-695-6200 206-695-6201 (fax)			
Client Contact: Miles Duer					No. of Cooler Coolers: \ Temps: \ 15.7				}			www.arilabs.com			
Client Project Name:							Analysis Requested				Notes/Comments				
JFO'S Suect Pile Client Project #: Samplers:				7											
0575	CCC				28										
Sample ID	Date	Time	Matrix	No. Containers	PCB.										
55P-E-20140910	9-13-14	1435	wipe	ı	X										
					•										
								-							
mments/Special Instructions Relinquished by Received by						Relinquished by				Received by.					
CC Dec Candon	(Signature) Printed Name: Charles Caces Company: Com			oharden ev			(Signature) Printed Name				(Signature) Printed Name				
Co Sound Forth							י ייייסט יזמוויס				Frinten Maine				
dganducze Soundeathine. Com	Company: Company						Company				Company				
soundeath inc. con	Date & Time: 9-10-14 1509 Date & Time:						Date & Time				Date & Time				

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or cosigned agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



Cooler Receipt Form

02000x	n From a	Octobrillo de Novembre	JFOS	Sheet p	! le					
ARI Client: WOLUNDE	morge	Project Name:	 							
COC No(s).	Valla NA	Delivered by Fed-	Ex UPS Cour	er Hand Delive	red Other					
Assigned ARI Job No:	1211	Tracking No:			 	─ NA				
reliminary Examination Phase:						_				
Were intact, properly signed and d	ated custody seals attached to	o the outside of to cooler?		١	/ES	NO				
Were custody papers included with	<u>(</u>	YE8	NO							
Were custody papers properly filled	d out (ink, signed, etc.)			((ES	NO				
Femperature of Cooler(s) (°C) (red Fime:	commended 2 0-6.0 °C for che	emistry) 15.7								
f cooler temperature is out of com	pliance fill out form 00070F	19_1		Temp Gun ID#	9087	7955				
•	· 1509									
poler Accepted by	Complete custody forms	Date: 9/10/14		1.201		•				
og-In Phase:	Complete custody forms	and attach an simpping t	iocuments							
						~				
Was a temperature blank included		_			YES	(NO				
What kind of packing material wa	as used? Bubble Wra	p Wetice Gel Packs Bag	ggies Foam I	Block Paper O	ther					
Was sufficient ice used (if appropri		NA	YES	NO						
Were all bottles sealed in individua			YES	MO						
Did all bottles arrive in good condit		YES.	NO							
Nere all bottle labels complete and		(ES	NO							
Did the number of containers listed		YES)	NO							
Did all bottle labels and tags agree		YES	NO							
Were all bottles used correct for th	e requested analyses?				(ES	NO				
Do any of the analyses (bottles) re	quire preservation? (attach pr	reservation sheet, excludin	g VOCs)	KA	YES	NO				
Were all VOC vials free of air bubb	NA	YES	NO							
Was sufficient amount of sample s	ent in each bottle?		•••••		(YES	NO				
Date VOC Trip Blank was made at	t ARI			NA						
	_		ent:		Split by:					
•	TS			0429						
amples Logged by:	Date	e. <u>4-11-19</u>	Time:	<u> </u>						
	** Notify Project Manage	er of discrepancies or co	ncems **							
0	0	01-101		0						
Sample ID on Bottle	Sample ID on COC	Sample ID on E	otue	Sample ID on COC						
						-				
Additional Notes, Discrepancies	2 Basalutiana									
Additional Notes, Discrepancies	, a resolutions.									
By: Date	A·									
Smell Air Bubbles Peabulblis		Small → "sm" (<2 mm	1)	-						
-2mm 2-4 mm	Peabubbles → "pb" (2 to < 4 mm)									
• • • • • •	>4 mm	Large → "lg" (4 to < 6 n								
		Headspace → "hs" (>6								
		canobace > iia (- o	/							

0016F 3/2/10

Sample ID Cross Reference Report



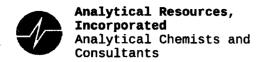
ARI Job No: YZ49 Client: Jorgensen Forge Project Event: 0995

Project Name: JFOS Sheet Pile

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR	
1.	SSP-E-20140910	YZ49A	14-18330	Wipe	09/10/14 14:35	09/10/14 15:09	

Printed 09/11/14 Page 1 of 1

YZ45 BEEF



Data Reporting Qualifiers Effective 12/31/13

Inorganic Data

- U Indicates that the target analyte was not detected at the reported concentration
- * Duplicate RPD is not within established control limits
- B Reported value is less than the CRDL but ≥ the Reporting Limit
- N Matrix Spike recovery not within established control limits
- NA Not Applicable, analyte not spiked
- H The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
- L Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

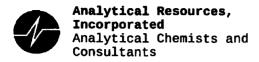
- U Indicates that the target analyte was not detected at the reported concentration
- * Flagged value is not within established control limits
- B Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
- J Estimated concentration when the value is less than ARI's established reporting limits
- D The spiked compound was not detected due to sample extract dilution
- E Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Laboratory Quality Assurance Plan

Page 1 of 3

Version 14-003 12/31/13

YZ45:00005

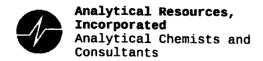


- Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).
- S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
- NA The flagged analyte was not analyzed for
- NR Spiked compound recovery is not reported due to chromatographic interference
- NS The flagged analyte was not spiked into the sample
- M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
- Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.
- EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" (Dioxin/Furan analysis only)
- C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
- P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference
- X Analyte signal includes interference from polychlorinated diphenyl ethers. (Dioxin/Furan analysis only)
- Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. (Dioxin/Furan analysis only)

Laboratory Quality Assurance Plan

Page 2 of 3

Version 14-003 12/31/13



Geotechnical Data

- A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
- F Samples were frozen prior to particle size determination
- SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
- SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
- W Weight of sample in some pipette aliquots was below the level required for accurate weighting



ORGANICS ANALYSIS DATA SHEET PCB by GC/ECD Method SW8082A Extraction Method: SW3580A

Page 1 of 1

Lab Sample ID: MB-091114

LIMS ID: 14-18330

Matrix: Wipe

Data Release Authorized: \text{NW}

Reported: 09/23/14

Date Extracted: 09/11/14 Date Analyzed: 09/20/14 02:57 Instrument/Analyst: ECD7/JGR

GPC Cleanup: No Sulfur Cleanup: Yes

Acid Cleanup: Yes

Sample ID: MB-091114 METHOD BLANK

QC Report No: YZ49-Jorgensen Forge

Project: JFOS Sheet Pile

0995

Date Sampled: NA Date Received: NA

Sample Amount: 1.00 Wipe Final Extract Volume: 10 mL Dilution Factor: 1.00

Silica Gel: No

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	1.0	< 1.0 U
53469-21-9	Aroclor 1242	1.0	< 1.0 U
12672-29-6	Aroclor 1248	1.0	< 1.0 U
11097-69-1	Aroclor 1254	1.0	< 1.0 U
11096-82-5	Aroclor 1260	1.0	< 1.0 U
11104-28-2	Aroclor 1221	1.0	< 1.0 U
11141-16-5	Aroclor 1232	1.0	< 1.0 U
37324-23-5	Aroclor 1262	1.0	< 1.0 U
11100-14-4	Aroclor 1268	1.0	< 1.0 U

Reported in Total µg

PCB Surrogate Recovery

Decachlorobiphenyl	94.2%
Tetrachlorometaxylene	75.5%

ANALYTICAL RESOURCES INCORPORATED

Sample ID: SSP-E-20140910

SAMPLE

ORGANICS ANALYSIS DATA SHEET PCB by GC/ECD Method SW8082A Extraction Method: SW3580A Page 1 of 1

Lab Sample ID: YZ49A LIMS ID: 14-18330

Matrix: Wipe

Data Release Authorized:

Reported: 09/23/14

Date Extracted: 09/11/14 Date Analyzed: 09/20/14 03:41 Instrument/Analyst: ECD7/JGR

11100-14-4 Aroclor 1268

GPC Cleanup: No Sulfur Cleanup: No Acid Cleanup: Yes

QC Report No: YZ49-Jorgensen Forge Project: JFOS Sheet Pile

0995

Date Sampled: 09/10/14 Date Received: 09/10/14

Sample Amount: 1.00 Wipe Final Extract Volume: 40 mL Dilution Factor: 1.00 Silica Gel: Yes

4.0

< 4.0 U

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	4.0	< 4.0 U
53469-21-9	Aroclor 1242	4.0	< 4.0 U
12672-29-6	Aroclor 1248	80	< 80 YE
11097-69-1	Aroclor 1254	4.0	730 E
11096-82-5	Aroclor 1260	4.0	190 EP
11104-28-2	Aroclor 1221	4.0	< 4.0 U
11141-16-5	Aroclor 1232	4.0	< 4.0 U
37324-23-5	Aroclor 1262	4.0	< 4.0 U

Reported in Total µg

PCB Surrogate Recovery

Decachlorobiphenyl	151%
Tetrachlorometaxylene	80.6%

ORGANICS ANALYSIS DATA SHEET PCB by GC/ECD Method SW8082A Extraction Method: SW3580A Page 1 of 1

Lab Sample ID: YZ49A LIMS ID: 14-18330

Matrix: Wipe

Data Release Authorized: WW

Reported: 09/23/14

Date Extracted: 09/11/14
Date Analyzed: 09/22/14 13:12
Instrument/Analyst: ECD7/JGR

GPC Cleanup: No Sulfur Cleanup: No Acid Cleanup: Yes Sample ID: SSP-E-20140910
DILUTION

QC Report No: YZ49-Jorgensen Forge

Project: JFOS Sheet Pile

0995

Date Sampled: 09/10/14
Date Received: 09/10/14

Sample Amount: 1.00 Wipe Final Extract Volume: 40 mL Dilution Factor: 100 Silica Gel: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	80	< 80 U
53469-21-9	Aroclor 1242	80	< 80 U
12672-29-6	Aroclor 1248	80	< 80 U
11097-69-1	Aroclor 1254	80	860
11096-82-5	Aroclor 1260	80	300
11104-28-2	Aroclor 1221	• 80	< 80 U
11141-16-5	Aroclor 1232	` 80	< 80 U
37324-23-5	Aroclor 1262	80	< 80 U
11100-14-4	Aroclor 1268	80	< 80 U

Reported in Total µg

PCB Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

7245:00016



SW8082/PCB SURROGATE RECOVERY SUMMARY

Matrix: Wipe

QC Report No: YZ49-Jorgensen Forge Project: JFOS Sheet Pile

0995

Client ID	DCBP	TCMX	TOT OUT
MB-091114	94.2%	75.5%	0
LCS-091114	95.0%	78.2%	Ó
SSP-E-20140910	151%	80.6%	0
SSP-E-20140910 DL	D	D	0

		L	CS/MB LIMITS	QC	LIMITS
	Decachlorobiphenyl Tetrachlorometaxylene	•	(30-160) (30-160)	•	0-160) 0-160)

Prep Method: SW3580A Log Number Range: 14-18330 to 14-18330



ORGANICS ANALYSIS DATA SHEET PCB by GC/ECD Method SW8082A Page 1 of 1

Lab Sample ID: LCS-091114

LIMS ID: 14-18330

Matrix: Wipe

Data Release Authorized:

Reported: 09/23/14

Date Extracted: 09/11/14
Date Analyzed: 09/20/14 03:19
Instrument/Analyst: ECD7/JGR

GPC Cleanup: No Sulfur Cleanup: Yes Acid Cleanup: Yes Sample ID: LCS-091114 LAB CONTROL

QC Report No: YZ49-Jorgensen Forge

Project: JFOS Sheet Pile

0995

Date Sampled: 09/10/14 Date Received: 09/10/14

Sample Amount: 1.00 Wipe Final Extract Volume: 10 mL

Dilution Factor: 1.00 Silica Gel: No

Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery	
Aroclor 1016	4.22	5.00	84.4%	
Aroclor 1260	5.15	5.00	103%	

PCB Surrogate Recovery

Decachlorobiphenyl	95.0%
Tetrachlorometaxylene	78.2%

Reported in Total µg

FORM III

YZHU: UUVIZ

PCB METHOD BLANK SUMMARY

BLANK NO.

YZ49MB1

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ49

Project: JFOS SHEET PILE

Lab Sample ID: YZ49MB1

Lab File ID: 0919A040

Date Extracted: 09/11/14

Matrix: SOLID

Date Analyzed: 09/20/14

Instrument ID: ECD7

Time Analyzed: 0257

GC Columns: ZB5/ZB35

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

CLIENT	LAB	DATE
SAMPLE NO.	SAMPLE ID	ANALYZED
 ======================================	YZ49LCS1 YZ49A	

ALL RUNS ARE DUAL COLUMN

6F 8082 INITIAL CALIBRATION OF AROCLOR 1016/1260

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: YZ49 Project: JFOS SHEET

GC Column: ZB5 Instrument ID: ECD7

Calibration Date: 07/21/14

SURROGATES

	·								
į	RT WIN	LVL1	LVL2	LVL3	LVL4	LVL5	LVL6	MEAN	%RSD
TCX	5.54- 5.74 14.43-14.63	0.7845	0.7534	0.7572	0.7562	0.7662	0.7814	0.7665	1.8
1		-							

	lor-1016 RT WIN		•		i	0.1		LVL4 .25		LVL5 0.5	1	LVL6 1.0	i	%RSD R^2
	7.54- 7.74 8.07- 8.27				1	0.0207	1	0.0191	-	0.0182	١	0.0176	•	
3	8.25- 8.45 8.68- 8.88	0.0279	j (0.0275	j	0.0272	İ	0.0258	İ	0.0248	İ	0.0242	0.0262	6.0

AROCLOR AVERAGE %RSD = 7.2

Aroclor	-1260	LVL1		LVL2	-	LVL3		LVL4	-	LVL5	- 1	LVL6	ı	MEAN	1	%RSD
Peak	RT WIN	. 02		0.05	ļ	0.1	1	. 25	ı	0.5		1.0	-		١	R^2
1 11.	86-12.06	0.0500		0.0483		0.0483	1	0.0424		0.0425		0.0413		0.0455	· 	8.4
2 12.	18-12.38	0.0463	İ	0.0454	1	0.0458	-	0.0407	-	0.0411	-1	0.0403		0.0432		6.6
3 12.	55-12.75	0.1222	1	0.1211	-	0.1241		0.1146		0.1186	-1	0.1191	- 1	0.1200	-	2.8
4 12.	95-13.15	0.0589	1	0.0584	-1	0.0596		0.0545		0.0558	- 1	0.0556	- 1	0.0571	-	3.7
5 13.	13-13.33	0.0377	1	0.0375	1	0.0380	- 1	0.0349	- 1	0.0356	1	0.0354	-1	0.0365		3.7

AROCLOR AVERAGE %RSD = 5.0

FORM VI PCB-1

YZ48 BEETS

6F 8082 INITIAL CALIBRATION OF AROCLOR 1016/1260

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: YZ49

Project: JFOS SHEET

GC Column: ZB35

Instrument ID: ECD7

Calibration Date: 07/21/14

SURROGATES

	RT WIN		•	•	•	•	•	MEAN	•
TCX DCB	5.13- 5.33 14.43-14.63	1.2192 1.3661	1.0817 1.2314	1.0669 1.1539	1.0070 1.0208	0.9783	0.9559	1.0515	9.1

Aroc]	lor-1016	LVL1	İ	LVL2		LVL3	- 1	LVL4		LVL5	- 1	LVL6		MEAN	1	%RSD
Peak	RT WIN	.02	1	0.05	,		•		•		•		•			
1	7.27- 7.47	0.0527		.0481										0.0433		
	8.08- 8.28		•				•		•				•		•	
3	8.56- 8.76	0.0277] 0	.0265	-	0.0252	ĺ	0.0224		0.0214	-	0.0201	1	0.0239	-	12.7
4	8.69- 8.89	0.0328	0	.0297	1	0.0279	- 1	0.0244	- 1	0.0228		0.0212	- 1	0.0265	1	16.7

AROCLOR AVERAGE %RSD = 14.4

Aroclor-1260 Peak RT WIN	LVL1 .02	LVL2 0.05	i	0.1	j	. 25	i	0.5	i	1.0	i	MEAN	j	%RSD R^2
1 11.72-11.92 2 12.26-12.46 3 12.54-12.74 4 13.10-13.30	0.0957 0.1858	0.0867	1	0.0865 0.0839 0.1689	1	0.0740 0.0716 0.1485	1	0.0722 0.0698 0.1474		0.0686 0.0661 0.1420	 	0.0818 0.0790 0.1605	 	14.6 14.6 10.7

AROCLOR AVERAGE %RSD = 13.3

TZ48: BBB16

FORM VI PCB-1

TZ45: UUUI f

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: YZ49

Project: JFOS SHEET

GC Column: ZB5

Instrument ID: ECD7

Calibration Date: 07/21/14

Aroclor-1221 Peak RT RT WIN Factor 1 6.091 5.99-6.19 0.00772 2 6.298 6.20-6.40 0.00684 3 6.422 6.32-6.52 0.02014 Aroclor-1232 Peak RT RT WIN Factor 1 7.640 7.54-7.74 0.00792 2 8.165 8.06-8.26 0.02446 3 8.353 8.25-8.45 0.01050 4 8.489 8.39-8.59 0.00763 Aroclor-1242 Peak RT RT WIN Factor 1 7.641 7.54-7.74 0.01529 2 8.165 8.06-8.26 0.04818 3 8.353 8.25-8.45 0.02047 4 9.326 9.23-9.43 0.01988 Aroclor-1248 Peak RT RT WIN Factor 1 7.641 7.54-7.74 0.01529 2 8.165 8.06-8.26 0.04818 3 8.353 8.25-8.45 0.02047 4 9.326 9.23-9.43 0.01988 Cal Peak RT RT WIN Factor				
Peak RT RT WIN Factor 1 6.091 5.99-6.19 0.00772 2 6.298 6.20-6.40 0.00684 3 6.422 6.32-6.52 0.02014 Aroclor-1232 Peak RT RT WIN Factor 1 7.640 7.54-7.74 0.00792 2 8.165 8.06-8.26 0.02446 3 8.353 8.25-8.45 0.01050 4 8.489 8.39-8.59 0.00763 Aroclor-1242 Peak RT WIN Factor Aroclor-1242 Aroclor-1248 Peak RT WIN Factor Cal Peak RT WIN Factor		Aroclo	r-1221	
1 6.091 5.99-6.19 0.00772 2 6.298 6.20-6.40 0.00684 3 6.422 6.32-6.52 0.02014 Aroclor-1232 Cal Peak RT RT WIN Factor 1 7.640 7.54-7.74 0.00792 2 8.165 8.06-8.26 0.02446 3 8.353 8.25-8.45 0.01050 4 8.489 8.39-8.59 0.00763 Aroclor-1242 Cal Peak RT RT WIN Factor 1 7.641 7.54-7.74 0.01529 2 8.165 8.06-8.26 0.04818 3 8.353 8.25-8.45 0.01050 4 9.326 9.23-9.43 0.01988 Aroclor-1248 Peak RT RT WIN Factor	Peak	RТ	RT WIN	1
2 6.298 6.20-6.40 0.00684 3 6.422 6.32-6.52 0.02014 Aroclor-1232 Cal Peak RT RT WIN Factor 1 7.640 7.54-7.74 0.00792 2 8.165 8.06-8.26 0.02446 3 8.353 8.25-8.45 0.01050 4 8.489 8.39-8.59 0.00763 Aroclor-1242 Cal Peak RT RT WIN Factor 1 7.641 7.54-7.74 0.01529 2 8.165 8.06-8.26 0.04818 3 8.353 8.25-8.45 0.02047 4 9.326 9.23-9.43 0.01988 Aroclor-1248 Cal Peak RT RT WIN Factor				
3 6.422 6.32-6.52 0.02014 Aroclor-1232 Peak RT RT WIN Factor 1 7.640 7.54-7.74 0.00792 2 8.165 8.06-8.26 0.02446 3 8.353 8.25-8.45 0.01050 4 8.489 8.39-8.59 0.00763 Aroclor-1242 Peak RT RT WIN Factor 1 7.641 7.54-7.74 0.01529 2 8.165 8.06-8.26 0.04818 3 8.353 8.25-8.45 0.02047 4 9.326 9.23-9.43 0.01988 Aroclor-1248 Peak RT RT WIN Factor				
Aroclor-1232 Peak RT RT WIN Factor 1 7.640 7.54-7.74 0.00792 2 8.165 8.06-8.26 0.02446 3 8.353 8.25-8.45 0.01050 4 8.489 8.39-8.59 0.00763 Aroclor-1242 Peak RT RT WIN Factor 1 7.641 7.54-7.74 0.01529 2 8.165 8.06-8.26 0.04818 3 8.353 8.25-8.45 0.02047 4 9.326 9.23-9.43 0.01988 Aroclor-1248 Peak RT RT WIN Factor	_			·
Peak RT RT WIN Factor 1 7.640 7.54-7.74 0.00792 2 8.165 8.06-8.26 0.02446 3 8.353 8.25-8.45 0.01050 4 8.489 8.39-8.59 0.00763 Aroclor-1242 Peak RT RT WIN Factor 1 7.641 7.54-7.74 0.01529 2 8.165 8.06-8.26 0.04818 3 8.353 8.25-8.45 0.02047 4 9.326 9.23-9.43 0.01988 Aroclor-1248 Peak RT RT WIN Factor				
Peak RT RT WIN Factor 1 7.640 7.54-7.74 0.00792 2 8.165 8.06-8.26 0.02446 3 8.353 8.25-8.45 0.01050 4 8.489 8.39-8.59 0.00763 Aroclor-1242 Cal Peak Aroclor-1242 Aroclor-1248 Peak RT WIN Cal Peak Cal Peak RT WIN Factor	-	Aroclo	r-1232	
1 7.640 7.54-7.74 0.00792 2 8.165 8.06-8.26 0.02446 3 8.353 8.25-8.45 0.01050 4 8.489 8.39-8.59 0.00763 Aroclor-1242 Peak RT RT WIN Factor 1 7.641 7.54-7.74 0.01529 2 8.165 8.06-8.26 0.04818 3 8.353 8.25-8.45 0.02047 4 9.326 9.23-9.43 0.01988 Aroclor-1248 Peak RT RT WIN Factor				
2 8.165 8.06-8.26 0.02446 3 8.353 8.25-8.45 0.01050 4 8.489 8.39-8.59 0.00763 Aroclor-1242 Cal Peak RT RT WIN Factor 1 7.641 7.54-7.74 0.01529 2 8.165 8.06-8.26 0.04818 3 8.353 8.25-8.45 0.02047 4 9.326 9.23-9.43 0.01988 Aroclor-1248 Peak RT RT WIN Factor	Peak	RT 	RT WIN	Factor
3 8.353 8.25-8.45 0.01050 4 8.489 8.39-8.59 0.00763 Aroclor-1242 Peak RT RT WIN Factor 1 7.641 7.54-7.74 0.01529 2 8.165 8.06-8.26 0.04818 3 8.353 8.25-8.45 0.02047 4 9.326 9.23-9.43 0.01988 Aroclor-1248 Peak RT RT WIN Factor	_			0.00792
Aroclor-1242 Peak RT RT WIN Factor 1 7.641 7.54-7.74 0.01529 2 8.165 8.06-8.26 0.04818 3 8.353 8.25-8.45 0.02047 4 9.326 9.23-9.43 0.01988 Aroclor-1248 Peak RT RT WIN Factor				
Aroclor-1242 Peak RT RT WIN Factor 1 7.641 7.54-7.74 0.01529 2 8.165 8.06-8.26 0.04818 3 8.353 8.25-8.45 0.02047 4 9.326 9.23-9.43 0.01988 Aroclor-1248 Peak RT RT WIN Factor				
Peak RT RT WIN Factor 1 7.641 7.54-7.74 0.01529 2 8.165 8.06-8.26 0.04818 3 8.353 8.25-8.45 0.02047 4 9.326 9.23-9.43 0.01988 Aroclor-1248 Peak RT RT WIN Factor				0.00763
Peak RT RT WIN Factor 1 7.641 7.54-7.74 0.01529 2 8.165 8.06-8.26 0.04818 3 8.353 8.25-8.45 0.02047 4 9.326 9.23-9.43 0.01988 Aroclor-1248 Peak RT RT WIN Factor		Aroclo	 r_1242	
1 7.641 7.54-7.74 0.01529 2 8.165 8.06-8.26 0.04818 3 8.353 8.25-8.45 0.02047 4 9.326 9.23-9.43 0.01988 Aroclor-1248 Peak RT RT WIN Cal Factor		ALOCIO	1-1242	Cal
2 8.165 8.06-8.26 0.04818 3 8.353 8.25-8.45 0.02047 4 9.326 9.23-9.43 0.01988 Aroclor-1248 Peak RT RT WIN Factor	Peak	RT	RT WIN	Factor
2 8.165 8.06-8.26 0.04818 3 8.353 8.25-8.45 0.02047 4 9.326 9.23-9.43 0.01988 Aroclor-1248 Peak RT RT WIN Factor	1	7.641	7.54~ 7.74	0.01529
4 9.326 9.23-9.43 0.01988 Aroclor-1248 Peak RT RT WIN Factor				0.04818
Aroclor-1248 Cal Peak RT RT WIN Factor			_	
Peak RT RT WIN Factor			9.23- 9.43 	
Peak RT RT WIN Factor		Aroglo		
				Cal
1 8.154 8.05- 8.25 0.03055	Peak	RT	RT WIN	Factor
	-			0.03055
2 8.778 8.68- 8.88 0.01755				,
3 9.321 9.22- 9.42 0.03044 4 9.797 9.70- 9.90 0.03767				
		<i>Э. Э </i> ·	9.70- 9.90 	0.03/6/

FORM VI PCB-2A

page 1 of 2

ATAR: ARAIR

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

_ARI Job No.: YZ49

Project: JFOS SHEET

GC Column: ZB5

Instrument ID: ECD7

Calibration Date: 07/21/14

	Aroclo	or-1254	Cal
Peak	RT	RT WIN	Factor
	0.143	10.04-10.24	0.03598
1	0.533	10.43-10.63	0.02488
	0.675		0.04837
1	1.037		0.05159
5 1	1.733	11.63-11.83	0.05112
	Aroclo	r-1262	
1			Cal
Peak	RT	RT WIN	Factor
			·
1 1	1.963	11.86-12.06	0.06338
2 1	2.280	12.18-12.38	0.04986
3 1	2.652	12.55-12.75	0.13623
4 1	3.049	12.95-13.15	0.04413
5 1	3.162	13.06-13.26	0.05810
	Aroclo	r-1268	
]			Cal
Peak	RT	RT WIN	Factor
	3.162	13.06-13.26	0.16503
	3.231	13.13-13.33	0.16508
3 1	3.595	13.49-13.69	0.14388
4 1	4.225	14.12-14.32	0.44705

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: YZ49 Project: JFOS SHEET

GC Column: ZB35 Instrument ID: ECD7

Calibration Date: 07/21/14

	Aroclo	r-1221	Cal
Peak	RT	RT WIN	Factor
1	6.065	5.97- 6.17	0.01356
2	6.361	6.26- 6.46	0.00778
3	6.495	6.39- 6.59	0.02335
4	7.386 	7.29- 7.49	0.00770
	Aroclo	r-1232	Cal
Peak	RT	RT WIN	Factor
	6.494	6.39- 6.59	0.01645
2 3	7.372 8.189	7.27- 7.47 8.09- 8.29	0.01890 0.03588
4	8.798	8.70- 8.90	0.01174
	Aroclo	r-1242	
			Cal
Peak	RT	RT WIN	Factor
1	6.489	6.39- 6.59	0.01564
2	7.366	7.27- 7.47	0.03278
3	8.182	8.08- 8.28	0.06800
4	9.263	9.16- 9.36	0.02490
	Aroclo	1-1248	Cal
Peak	RT	RT WIN	Factor
1	7.356	7.26- 7.46	0.01614
2	8.170	8.07- 8.27	0.01614
3	8.859	8.76- 8.96	0.02396
	10.206	10.11-10.31	

FORM VI PCB-2A

page 1 of 2

AZMA: AMAZR

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

_ARI Job No.: YZ49 Project: JFOS SHEET

GC Column: ZB35 Instrument ID: ECD7

Calibration Date: 07/21/14

	Arocic	or-1254	Cal
Peak	RT	RT WIN	Factor
1	 9.910	9.81-10.01	0.03100
1 -	0.100	10.00-10.20	0.03100
1	0.795	10.70-10.90	0.05657
	1.055		0.06573
	1.821		0.04902
			· <u>-</u>
	Aroclo	r-1262	~ 3
5 1		**************************************	Cal
Peak	RT	RT WIN	Factor
1 1	 2.370	10 07 10 47	0.08614
	2.643	12.27-12.47 12.54-12.74	0.08614
1	3.152		0.17319
	3.211		0.07070
•		13.75-13.95	0.06071
	Aroclo	r-1268	
_			Cal
Peak	RT	RT WIN	Factor
1 1	3.152	13.05-13.25	0.18571
	3.215		0.17538
	3.569		0.14298
	4.234		0.39624
			·

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: YZ49

Project: JFOS SHEET

GC Column: ZB5

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed:09/20/14

Lab Standard ID: AR1242 Time Analyzed: 0108

	RT W	INDOW	CALC	MOM	
RT	FROM	то	AMOUNT	AMOUNT	%D
ļ		ļ	(ng)	(ng)	
: =====	=====	=====	======	=======	=====
7.64	7.54	7.74	255.9	250.0	2.4
8.16	8.06	8.26	241.7	250.0	-3.3
8.35	8.25	8.45	239.3	250.0	-4.3
9.33	9.23	9.43	241.3	250.0	-3.5
	7.64 8.16 8.35	RT FROM	7.64 7.54 7.74 8.16 8.06 8.26 8.35 8.25 8.45	RT FROM TO AMOUNT (ng)	RT FROM TO AMOUNT (ng) (ng) (ng) ======= 7.64 7.54 7.74 255.9 250.0 8.16 8.06 8.26 241.7 250.0 8.35 8.25 8.45 239.3 250.0

AVERAGE D = 3.4

FORM VII PCB

YZ45: GGGZZ

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

_ARI Job No.: YZ49

Project: JFOS SHEET

GC Column: ZB5

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed:09/20/14

Lab Standard ID: AR1660

Time Analyzed:0130

		RT W	ENDOW	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	то	AMOUNT (ng)	AMOUNT (ng)	%D
=======================================	=====	======	=====	=======	======	=====
Aroclor-1016-1	7.64	7.54	7.74	263.3	250.0	5.3
Aroclor-1016-2	8.16	8.07	8.27	239.8	250.0	-4.1
Aroclor-1016-3	8.35	8.25	8.45	242.1	250.0	-3.1
Aroclor-1016-4	8.78	8.68	8.88	245.9	250.0	-1.6
	-	•			'	•

AVERAGE D = 3.5

Date Analyzed:09/20/14

Lab Standard ID: AR1660

Time Analyzed:0130

		RT W	INDOW	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT	AMOUNT	%D
	<u> </u>			(ng)	(ng)	
=======================================	=====	=====	=====	======	======	=====
Aroclor-1260-1	11.96	11.86	12.06	263.9	250.0	5.6
Aroclor-1260-2	12.28	12.18	12.38	255.7	250.0	2.3
Aroclor-1260-3	12.65	12.55	12.75	268.4	250.0	7.4
Aroclor-1260-4	13.05	12.95	13.15	254.7	250.0	1.9
Aroclor-1260-5	13.23	13.13	13.33	243.9	250.0	-2.4
	•					

AVERAGE D = 3.9

YZ43: 006Z3

FORM VII PCB

TZHD: 86657

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: YZ49

Project: JFOS SHEET

GC Column: ZB5

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed:09/20/14

Lab Standard ID: AR1248

Time Analyzed: 0508

		RT W	NDOW	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT	AMOUNT	%D
'				(ng)	(ng)	
	=====	=====	=====	======	=======	=====
Aroclor-1248-1	8.16	8.05	8.25	. 249.9	250.0	-0.0
Aroclor-1248-2	8.78	8.68	8.88	. 246.9	250.0	-1.2
Aroclor-1248-3	9.33	9.22	9.42	246.2	250.0	-1.5
Aroclor-1248-4	9.80	9.70	9.90	249.0	250.0	-0.4
	•		•	•	'	

AVERAGE D = 0.8

FORM VII PCB

YZ49: UUUZ5

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: YZ49

Project: JFOS SHEET

GC Column: ZB5

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed:09/20/14

Lab Standard ID: AR1660

Time Analyzed:0530

	RT WINDOW		CALC	NOM	
RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
== ======	=====	=====	=======	======	=====
7.64	7.54	7.74	265.8	250.0	6.3
8.16	8.07	8.27	241.1	250.0	-3.6
8.35	8.25	8.45	244.9	250.0	-2.0
8.78	8.65	8.88	248.8	250.0	-0.5
	7.64 8.16 8.35	RT FROM == 7.64 7.54 8.16 8.07 8.35 8.25	RT FROM TO == 7.64 7.54 7.74 8.16 8.07 8.27 8.35 8.25 8.45	RT FROM TO AMOUNT (ng)	RT FROM TO AMOUNT (ng) (ng)

AVERAGE %D = 3.1

Date Analyzed :09/20/14

Lab Standard ID: AR1660

Time Analyzed:0530

	RT WINDOW		CALC	NOM		
RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D	
=====	=====	=====	=======	======	=====	
11.96	11.86	12.06	267.8	250.0	7.1	
12.28	12.18	12.38	260.0	250.0	4.0	
12.65	12.55	12.75	272.6	250.0	9.0	
13.05	12.95	13.15	260.4	250.0	4.2	
13.23	13.13	13.33	249.7	250.0	-0.1	
	11.96 12.28 12.65 13.05	RT FROM ===== = 11.96 11.86 12.28 12.18 12.65 12.55 13.05 12.95	RT FROM TO ====== ============================	RT FROM TO AMOUNT (ng) ====== 11.96 11.86 12.06 267.8 12.28 12.18 12.38 260.0 12.65 12.55 12.75 272.6 13.05 12.95 13.15 260.4	RT FROM TO AMOUNT (ng) (ng) ====== ==== ==== ==== ==== ===== ===== ====	

AVERAGE D = 4.9

ANAR: RRRAP

FORM VII PCB

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: YZ49

Project: JFOS SHEET

GC Column: ZB35

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed:09/20/14

Lab Standard ID: AR1242

Time Analyzed :0108

		RT WINDOW		CALC	NOM		
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D	
=======================================	=== ====	=====	=====	=======	=======	=====	
Aroclor-1242-1	6.49	6.39	6.59	293.4	250.0	17.3	
Aroclor-1242-2	7.37	7.27	7.47	295.7	250.0	18.3	
Aroclor-1242-3	8.18	8.08	8.28	285.4	250.0	14.2	
Aroclor-1242-4	9.26	9.16	9.36	284.0	250.0	13.6	

AVERAGE D = 15.8

FORM VII PCB

YZ49: 88828

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: YZ49

Project: JFOS SHEET

GC Column: ZB35

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed:09/20/14

Time Analyzed:0130

Lab Standard ID: AR1660

		RT W	INDOW	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	OT	AMOUNT	AMOUNT	%D
			!	(ng)	(ng)	
=======================================	=====	=====	=====	======	======	=====
Aroclor-1016-1	7.36	7.27	7.47	293.0	250.0	17.2
Aroclor-1016-2	8.18	8.08	8.28	273.7	250.0	9.5
Aroclor-1016-3	8.65	8.56	8.76	283.3	250.0	13.3
Aroclor-1016-4	8.79	8.69	8.89	278.3	250.0	11.3
	·	•	•	•		·

AVERAGE D = 12.8

Date Analyzed:09/20/14

Lab Standard ID: AR1660 Time Analyzed: 0130

		RT WINDOW		CALC	NOM		
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D	
=======================================	= =====	=====	=====	=======	=======	=====	
Aroclor-1260-1	11.82	11.72	11.92	224.2	250.0	-10.3	
Aroclor-1260-2	_ 12.36	12.26	12.46	230.3	250.0	-7.9	
Aroclor-1260-3	12.64	12.54	12.74	234.7	250.0	-6.1	
Aroclor-1260-4	13.20	13.10	13.30	220.5	250.0	-11.8	

AVERAGE %D = 9.0

YZ43: @WWZ5

FORM VII PCB

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: YZ49

Project: JFOS SHEET

GC Column: ZB35

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed:09/20/14

Lab Standard ID: AR1248 Time Analyzed: 0508

		RT WINDOW		CALC	NOM		
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	% D	
=======================================	= =====	=====	=====	======	======	====	
Aroclor-1248-1	7.36	7.26	7.46	302.6	250.0	21.0	
Aroclor-1248-2	8.18	8.07	8.27	295.6	250.0	18.2	
Aroclor-1248-3	8.86	8.76	8.96	279.2	250.0	11.7	
Aroclor-1248-4	10.21	10.11	10.31	305.9	250.0	22.4	

AVERAGE D = 18.3

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: YZ49

Project: JFOS SHEET

GC Column: ZB35

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed: 09/20/14

Lab Standard ID: AR1660

Time Analyzed :0530

		RT W	INDOW	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
=======================================	=====	=====	=====	=======	======	=====
Aroclor-1016-1	7.36	7.27	7.47	291.0	250.0	16,4
Aroclor-1016-2	8.18	8.08	8.28	271.9	250.0	8,8
Aroclor-1016-3	8.65	8.56	8.76	282.7	250.0	13.1
Aroclor-1016-4	8.79	8.69	8.89	278.2	250.0	11.3
	•	•	•	•	•	•

AVERAGE D = 12.4

Date Analyzed:09/20/14

Lab Standard ID: AR1660

Time Analyzed:0530

COMPOUND/PEAK NO.	RT	RT W	TO TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
=======================================	=====	=====	=====	======	======	=====
Aroclor-1260-1	11.82	11.72	11.92	224.0	250.0	-10.4
Aroclor-1260-2	12.36	12.26	12.46	230.0	250.0	-8.0
Aroclor-1260-3	12.64	12.54	12.74	235.7	250.0	-5.7
Aroclor-1260-4	13.20	13.10	13.30	221.1	250.0	-11.5

AVERAGE D = 8.9

FORM VII PCB

FORM 8 PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: YZ49

Project: JFOS SHEET

GC Column: ZB5 ID: 0.53 (mm)

Instrument ID: ECD7

Init. Calib. Date: 07/21/14

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

						IS1		IS2	
						AREA	RT	AREA	RT
				=====:		=======	EESSE	=======	======
				ICAL	MIDPT	4434421	2.698	4077244	14.794
				UPPER	LIMIT	8868842	2.798	8154488	14.894
				LOWER	LIMIT	2217210	2.598	2038622	14.694
						<u></u>			
	CLIENT	LAB	1	DATE	[IS1		IS2	
	SAMPLE NO.	SAMPLE ID	AN	LYZED	TIME	AREA	RT	AREA	RT
		=========	====	======	=====	=======	======	=======	======
01	ZZZZZ	ZZZZZ	07/	21/14	1626	4373805	2.692	3760196	14.794
02		0.25PPMAR166	07/	/21/14	1648	4434421	2.698	4077244	14.794
03		0.02PPMAR166	07,	/21/14	1710	4447124	2.695	3891807	14.794
04		0.05PPMAR166	07,	/21/14	1732	4441352	2.694	3882218	14.795
05		1PPMAR1660	07,	/21/14	1754	4414652	2.693	3889578	14.795
06		0.1PPMAR1660	07,	/21/14	1816	4521857	2.697	3895919	14.795
07		0.5PPMAR1660	07,	/21/14	1837	4493869	2.693	3945031	14.795
08		AR1242	07,	/21/14	1859	4438700	2.692	3879215	14.795
09		AR1248	07,	/21/14	1921	4414839	2.697	3887155	14.795
10		AR1254	07,	/21/14	1943	4508938	2.695	3960286	14.795
11		AR2162	07,	/21/14	2005	4494447	2.696	3952241	14.795
12		AR3268	07,	/21/14	2027	4552734	2.702	4020488	14.795
13	ZZZZZ	ZZZZZ	07,	/21/14	2049	4445508	2.694	3936762	14.795
14	ZZZZZ	ZZZZZ	07,	/21/14	2111	4558602	2.696	4045633	14.795
15	ZZZZZ	ZZZZZ	07,	/21/14	2133	4461342	2.697	4016945	14.795
16	ZZZZZ	ZZZZZ	07	/21/14	2154	4529995	2.696	4048326	14.794
17	ZZZZZ	ZZZZZ	07,	/21/14	2216	4527689	2.697	4039776	14.794
18	ZZZZZ	ZZZZZ	07,	/21/14	2238	4512425	2.694	4015293	14.794
19		AR1242	09,	/20/14	0108	5417163	2.703	4160853	14.794
20		AR1660	09	/20/14	0130	4679826	2.700	4027634	14.794
21	YZ49MB1	YZ49MB1	09,	/20/14	0257	5178898	2.703	4186334	14.793
22	ZZZZZ	ZZZZZ	•	/20/14	0319	5144447	2.704	4139434	14.793
23	SSP-E-201409	YZ49A		/20/14	0341	5354577	2.705	4763441	14.795
24		AR1248		/20/14	0508	5158208	2.704	4516663	14.793
25		AR1660	•	/20/14	0530	4694209	2.701	4060251	14.794
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	·	·	. — —			· 		·	

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min

IS2 = Hexabromobiphenyl

^{*} Indicates value outside QC Limits

pge 1 of 1

FORM VIII PCB

YZ43:00035

FORM 8 PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: YZ49

Project: JFOS SHEET

GC Column: ZB35 ID: 0.53(mm) Instrument ID: ECD7

Init. Calib. Date: 07/21/14

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

						IS1		IS2		
						AREA	RT	AREA	RT	1
				======	======	=======	======	=======	======	
			- 1	ICAL	MIDPT	11221020	3.068	7927142	15.138	
			- 1	UPPER	LIMIT	22442040	3.168	15854284	15.238	1
				LOWER	LIMIT	5610510	2.968	3963571	15.038	
	-									
ļ	CLIENT	LAB		ATE		IS1		IS2		
	SAMPLE NO.	SAMPLE ID	ANA	TAZED	TIME	AREA	RT	AREA	RT	
ļ	=========	==========	========			=======		=======	======	
,	ZZZZZ	ZZZZZ		21/14	1626	11004730	3.063	7358659	15.138	
02		0.25PPMAR166		21/14	1648	11221020	3.066	7927142	15.138	
03		0.02PPMAR166		21/14	1710	11165593	3.066	7592758	15.138	
04		0.05PPMAR166		21/14	1732	11143504	3.065	7552963	15.139	
05		1PPMAR1660		21/14	1754	11066585	3.065	7627214	15.138	
06		0.1PPMAR1660		21/14	1816	11325344	3.067	7687777	15.138	
07		0.5PPMAR1660		21/14	1837	11352435	3.063	7765451	15.138	
08		AR1242	07/	21/14	1859	11252651	3.063	7692669	15.138	
09		AR1248		21/14	1921	11180919	3.066	7655141	15.138	
10		AR1254		21/14	1943	11293843	3.066	7784494	15.138	
11		AR2162		21/14	2005	11029310	3.067	7767574	15.137	
12		AR3268		21/14	2027	11362773	3.070	7876862	15.138	
13	ZZZZZ	ZZZZZ	07/	21/14	2049	11184271	3.065	7717457	15.139	
14	ZZZZZ	ZZZZZ	07/	21/14	2111	11369418	3.066	7903232	15.138	
	ZZZZZ	ZZZZZ	07/	21/14	2133	11175868	3.067	7850594	15.137	
16	ZZZZZ	ZZZZZ	07/	21/14	2154	11269109	3.066	7889154	15.137	1
17	ZZZZZ	ZZZZZ	07/	21/14	2216	11177181	3.066	7868041	15.138	
18	ZZZZZ	ZZZZZ	07/	21/14	2238	11096232	3.064	7812050	15.137	
19		AR1242	09/	20/14	0108	9231366	3.066	7023173	15.132	
20		AR1660	09/	20/14	0130	7770669	3.065	6609828	15.132	
21	YZ49MB1	YZ49MB1	09/	20/14	0257	11075822	3.066	7203088	15.131	
22	YZ49LCS1	YZ49LCS1		20/14	0319	11007344	3.067	7095502	15.132	
23	SSP-E-201409	YZ49A	09/	20/14	0341	11509087	3.067	14399038	15.132	ĺ
24		AR1248	09/	20/14	0508	8863276	3.067	7646947	15.132	l
25		AR1660	09/	20/14	0530	7902677	3.065	6867926	15.132	١
ĺ					l	li				

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min

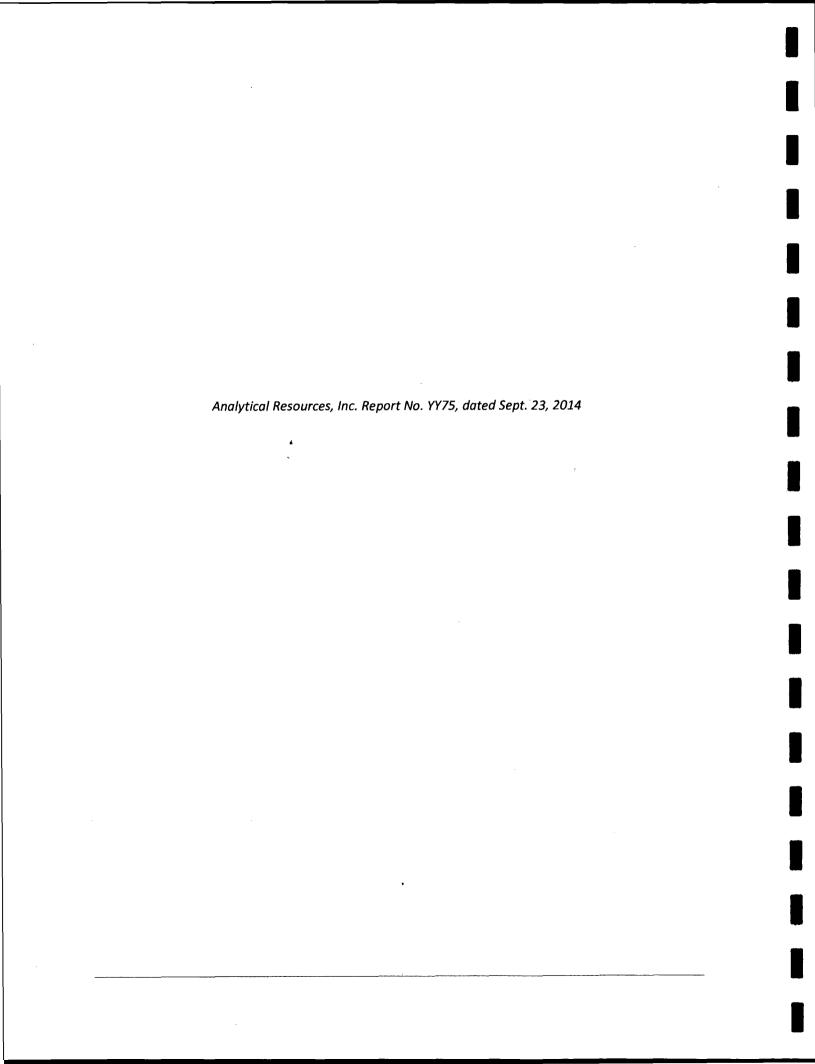
IS2 = Hexabromobiphenyl

^{*} Indicates value outside QC Limits

rege 1 of 1

FORM VIII PCB

ANTAR : MARRIS &





23 September 2014

Miles Dyer Jorgensen Forge Corporation 8531 East Marginal Way South Seattle, WA 98108

RE: JFOS Sheet Pile ARI Job No.: YZ75

Dear Miles:

Please find enclosed the original Chain-of-Custody (COC) record, sample receipt documentation, and the final data for the sample from the project referenced above. Analytical Resources, Inc. (ARI) accepted one soil sample on September 11, 2014. For further details regarding sample receipt please refer to the enclosed Cooler Receipt Form. The sample was analyzed for PCBs as requested.

The percent differences (%Ds) for Aroclors 1016 and 1248 were high for one column for the CCALs that bracketed the analysis of this sample. This column was used for confirmation only. The data from the primary column was used for quantitation.

The pecent recovery for the surrogate, TCMX, was low following the analysis of this sample. Since the percent recovery for the secondary surrogate, DCBP, was within established QC limits, no corrective actions were taken.

There were no further anomalies associated with the analysis of this sample.

An electronic copy of this report and all supporting raw data will remain on file with ARI. Should you have any questions regarding these results, please feel free to contact me at your convenience.

Respectfully,

ANALYTICAL RESOURCES, INC.

Mark D. Harris

Project Manager
206/695-6210

markh@arilabs.com

www.arilabs.com

cc: Dee Gardner, Sound Earth, Inc.
Mingta Lin, Pyron Envurinmental
eFile YZ75

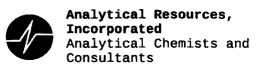
Enclosures

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: ソそ子S	Turn-around Requested: STANDARD Phone: 206, 762, 1100		Page: of Date: lce Present? No. of Coolers: Temps:		Analytical Resources, Incorporated Analytical Chemists and Consultan 4611 South 134th Place, Suite 100 Tukwila, WA 98168 206-695-6200 206-695-6201 (fax) www.arilabs.com		onsultants						
ARI Client Company: Jo PHENSEN FORGE Client Contact: MISS DYER							wila, WA 98168 -695-6200 206-695-62	58					
Client Project Name:									Requested			Notes/Comme	ents
JFOS SHEET PIL	Æ				- 4								
Client Project #:	Samplers:	ala			\$ 00 00 00 00 00 00 00 00 00 00 00 00 00								
Sample ID	Date	Time	Matrix	No Containers	pces epa b								
SSP-50LID3-20140911	09.11.2014	1255	5011		X								
											i		
		·····		<u> </u>									
			<u> </u>										
					1		, ·)						
Comments/Special Instructions • CC:DEEGARDNB2 AT	Relinquished by (Signature)	Du	•	Received by (Signature)	1-1	MI		Relinquished (Signature)	•		Receive (Signatu	nte)	
SoundEARFH dgardner@soundearthinc.	Printed Name DEE G	red h es		Printed Name	nniler	Mi	1/200	Printed Nam	9:		Printed	Name.	
· LEVEL 2B	Company.		,	Company:	C			Company			Compar	ny:	
9 AROCIORS	Date & Time 09.11.20		345	Date & Titre.		13	345	Date & Time.			Date & 1	Time	

in Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or cosigned agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



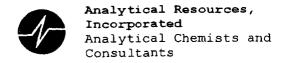
Cooler Receipt Form

ARI Client: JCYCLES	sen Forge	Project Name: FOS S	short Pil	() (
COC No(s):	(NA)	Delivered by: Fed-Ex UPS Coun	ier Hand Delivered O	ther:
Assigned ARI Job No:	17.75	Tracking No:		(NA)
Preliminary Examination Phase:	- / K 	<u></u>		7(0)
Were intact, properly signed and	dated custody seals attached t	o the outside of to cooler?	YES	(NO)
Were custody papers included w	•		(FS)	NO
Were custody papers properly fill			(VES)	NO
Temperature of Cooler(s) (°C) (re	· · • · ·		(129)	140
If cooler temperature is out of co	mpliance fill out form 00070F		Temp Gun ID#: 90	1877952
Cooler Accepted by:		Date: 9/1/14 Time:	1345	
		and attach all shipping documents		
Log-In Phase:				
Was a temperature blank include	nd in the cooler?		YE!	s (NO
•		p Wet Ice Gel Packs Baggies Foam I		3 (140)
Was sufficient ice used (if approp			NA YES	s (NO
Were all bottles sealed in individu	•		YES	
	•		(FE)	\sim
			(FE)	
		ber of containers received?	(YE	
			(YES	
	• • •		(E)	,
		reservation sheet, excluding VOCs).	NA' YE	
Were all VOC vials free of air but	, , , , , ,	• • •	NA YES	
			(YE	_
			(NA)	5 140
Was Sample Split by ARI:	₹,	Equipment:	Split I	hv:
reas cample opin by Aid.	^ TEO DEGITATIO		Opiii i	
Samples Logged by:	<u> Date</u>	e: <u>C() () </u>	1650	_
	** Notify Project Manag	er of discrepancies or concerns **	•	
Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle `	Sample ID o	n COC
			<u> </u>	
Additional Notes, Discrepancie	es, & Resolutions:			
By. Da	ate:			
Smell Air Bubbles Peebulbi		Small → "sm" (<2 mm)		
-2mm 2-4 m		Peabubbles → "pb" (2 to < 4 mm)		
• . • . • . •		Large → "lg" (4 to < 6 mm)		
L		Headspace → "hs" (>6 mm)		

0016F 3/2/10 Cooler Receipt Form

Revision 014

Range : Clyl



Cooler Temperature Compliance Form

Cooler#:	ooler#: Temperature(°C): ♂○↓ mple ID Bottle Count Bottle Type					
Sample ID		Bottle Count	Bottle Type			
	DS-20140911	1	807 WICLE MOUTH			
OSP - COCI	2 20150 111		207 W. C. V. V. C. V. Y. J.			
	-	-1 (°C)				
Cooler#:	ı empei	rature(°C): Bottle Count	Battle Tyre			
Sample ID		Bottle Count	Bottle Type			
	·					
Cooler#:	Tempe	rature(°C):				
Sample ID		Bottle Count	Bottle Type			
<u> </u>						
Cooler#:	Tempe	rature(°C):	<u> </u>			
Sample ID		rature(°C): Bottle Count	Bottle Type			
,						
Completed by:		A Date	e: 911/14 Time: 1/052			

Sample ID Cross Reference Report



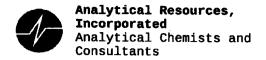
ARI Job No: YZ75 Client: Jorgensen Forge

Project Event: N/A

Project Name: JFOS Sheet Pile

	Sample ID	Lab ID	LIMS ID	Matrix	Sample Date/Time	VTSR
1.	SSP-SOLIDS-20140911	YZ75A	14-18512	Soil	09/11/14 12:55	09/11/14 13:45

Printed 09/11/14 Page 1 of 1



Data Reporting Qualifiers Effective 12/31/13

Inorganic Data

- U Indicates that the target analyte was not detected at the reported concentration
- * Duplicate RPD is not within established control limits
- B Reported value is less than the CRDL but ≥ the Reporting Limit
- N Matrix Spike recovery not within established control limits
- NA Not Applicable, analyte not spiked
- H The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
- L Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

- U Indicates that the target analyte was not detected at the reported concentration
- * Flagged value is not within established control limits
- Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
- J Estimated concentration when the value is less than ARI's established reporting limits
- D The spiked compound was not detected due to sample extract dilution
- E Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.



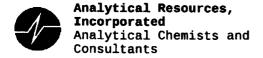
Analytical Resources, Incorporated Analytical Chemists and Consultants

- Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).
- Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
- NA The flagged analyte was not analyzed for
- NR Spiked compound recovery is not reported due to chromatographic interference
- NS The flagged analyte was not spiked into the sample
- M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
- Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.
- EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" (Dioxin/Furan analysis only)
- C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
- P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference
- X Analyte signal includes interference from polychlorinated diphenyl ethers. (Dioxin/Furan analysis only)
- Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. (Dioxin/Furan analysis only)

Laboratory Quality Assurance Plan

Page 2 of 3

Version 14-003 12/31/13



Geotechnical Data

- A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
- F Samples were frozen prior to particle size determination
- SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
- SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
- W Weight of sample in some pipette aliquots was below the level required for accurate weighting



ORGANICS ANALYSIS DATA SHEET PCB by GC/ECD Method SW8082A Extraction Method: SW3546 Page 1 of 1

Sample ID: MB-091614 METHOD BLANK

Lab Sample ID: MB-091614

LIMS ID: 14-18512

Matrix: Soil

Data Release Authorized:

Reported: 09/23/14

Date Extracted: 09/16/14 Date Analyzed: 09/19/14 17:50 Instrument/Analyst: ECD7/JGR

GPC Cleanup: No Sulfur Cleanup: Yes Acid Cleanup: Yes Florisil Cleanup: No QC Report No: YZ75-Jorgensen Forge Project: JFOS Sheet Pile

Date Sampled: NA Date Received: NA

Sample Amount: 12.5 g
Final Extract Volume: 2.50 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	4.0	< 4.0 U
53469-21-9	Aroclor 1242	4.0	< 4.0 U
12672-29-6	Aroclor 1248	4.0	< 4.0 U
11097-69-1	Aroclor 1254	4.0	< 4.0 U
11096-82-5	Aroclor 1260	4.0	< 4.0 U
11104-28-2	Aroclor 1221	4.0	< 4.0 U
11141-16-5	Aroclor 1232	4.0	< 4.0 U
37324-23-5	Aroclor 1262	4.0	< 4.0 U
11100-14-4	Aroclor 1268	4.0	< 4.0 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	93.8%
Tetrachlorometaxylene	72.5%

ORGANICS ANALYSIS DATA SHEET PCB by GC/ECD Method SW8082A Extraction Method: SW3546 Page 1 of 1

Sample ID: SSP-SOLIDS-20140911 SAMPLE

Lab Sample ID: YZ75A

LIMS ID: 14-18512

Matrix: Soil

Data Release Authorized: WW

Reported: 09/23/14

Date Extracted: 09/16/14 Date Analyzed: 09/20/14 02:35 Instrument/Analyst: ECD7/JGR

GPC Cleanup: No Sulfur Cleanup: Yes Acid Cleanup: Yes Florisil Cleanup: No QC Report No: YZ75-Jorgensen Forge

Project: JFOS Sheet Pile

Date Sampled: 09/11/14 Date Received: 09/11/14

Sample Amount: 4.92 g-dry-wt Final Extract Volume: 2.50 mL Dilution Factor: 10.0

Silica Gel: Yes

Percent Moisture: 1.7%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	100	< 100 U
53469-21-9	Aroclor 1242	100	< 100 U
12672-29-6	Aroclor 1248	100	2,400
11097-69-1	Aroclor 1254	100	3,100
11096-82-5	Aroclor 1260	100	900
11104-28-2	Aroclor 1221	100	< 100 U
11141-16-5	Aroclor 1232	100	< 100 U
37324-23-5	Aroclor 1262	100	< 100 U
11100-14-4	Aroclor 1268	100	< 100 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	50.0%
Tetrachlorometaxylene	43.2%



SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: YZ75-Jorgensen Forge Project: JFOS Sheet Pile

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX	TOT OUT
CITEUR ID	JAN 6	TCT-0CT	JAN 6	TCT-0CT	101 001
MB-091614	93.8%	59-115	72.5%	58-112	0
LCS-091614	89.2%	59-115	71.8%	58-112	0
LCSD-091614	92.0%	59-115	68.2%	58-112	0
SSP-SOLIDS-20140911	50.0%	47-120	43.2%*	53-116	1

Microwave (MARS) Control Limits PCBSMI Prep Method: SW3546 Log Number Range: 14-18512 to 14-18512

FORM-II SW8082



ORGANICS ANALYSIS DATA SHEET PCB by GC/ECD Method SW8082A Page 1 of 1

Sample ID: LCS-091614 LCS/LCSD

Lab Sample ID: LCS-091614

LIMS ID: 14-18512

Matrix: Soil

Data Release Authorized:

Reported: 09/23/14

QC Report No: YZ75-Jorgensen Forge

Project: JFOS Sheet Pile

Date Sampled: NA Date Received: NA

Date Extracted LCS/LCSD: 09/16/14

Sample Amount LCS: 12.5 g-dry-wt

LCSD: 12.5 g-dry-wt

Date Analyzed LCS: 09/19/14 18:12

LCSD: 09/19/14 18:34

Final Extract Volume LCS: 2.50 mL LCSD: 2.50 mL

Instrument/Analyst LCS: ECD7/JGR LCSD: ECD7/JGR

Dilution Factor LCS: 1.00

LCSD: 1.00

GPC Cleanup: No Sulfur Cleanup: Yes Silica Gel: Yes

Acid Cleanup: Yes Florisil Cleanup: No Percent Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Aroclor 1016	77.0	101	76.2%	76.7	101	75.9%	0.4%
Aroclor 1260	86.8	101	85.9%	918	101	90.9%	5.6%

PCB Surrogate Recovery

•	LCS	LCSD
Decachlorobiphenyl	89.2%	92.0%
Tetrachlorometaxylene	71.8%	68.2%

Results reported in µg/kg (ppb) RPD calculated using sample concentrations per SW846.

FORM III

YZ(G: GGB1Z

PCB METHOD BLANK SUMMARY

BLANK NO.

YZ45MBS1

Lab Name: ANALYTICAL RESOURCES INC Client: THE BOEING COMPANY

ARI Job No.: YZ75

Project: BP2 PERIMETER

Lab Sample ID: YZ45MBS1

Lab File ID: 0919A015

Date Extracted: 09/16/14

Matrix: SOLID

Date Analyzed: 09/19/14

Instrument ID: ECD7

Time Analyzed: 1750

GC Columns: ZB5/ZB35

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT	LAB	DATE
	SAMPLE NO.	SAMPLE ID	ANALYZED
		=======	=======================================
01	YZ45LCSS1	YZ45LCSS1	09/19/14
02	YZ45LCSDS1	YZ45LCSDS1	09/19/14
03	SSP-SOLIDS-20140911	YZ-7-5A	09/20/14

ALL RUNS ARE DUAL COLUMN

6F 8082 INITIAL CALIBRATION OF AROCLOR 1016/1260

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN FORGE

ARI Job No.: YZ75

Project: JOFS SHEET PILE

GC Column: ZB5

Instrument ID: ECD7

Calibration Date: 07/21/14

SURROGATES

RT WIN				•	•	•	*	•
TCX 5.54- 5.74 0.	7845	0.7534	0.7572	0.7562	0.7662	0.7814	0.7665	1.8

	·															1
Arocl	lor-1016	LVL1	LVL2	1	LVL3	- 1	LVL4	- 1	LVL5	1	LVL6	1	MEAN		&RSD	ĺ
Peak	RT WIN	.02	0.05	-	0.1	1	.25	1	0.5	1	1.0	1			R^2	١
																
1	7.54- 7.74	0.0223	0.0208	- 1	0.0207	1	0.0191	1	0.0182	1	0.0176		0.0198		9.0	Ī
2	8.07~ 8.27	0.0659	0.0646		0.0641	1	0.0610	- 1	0.0595	Ι	0.0590	- 1	0.0623	1	4.6	l
3	8.25- 8.45	0.0279	0.0275		0.0272	İ	0.0258	- 1	0.0248	Ì	0.0242	ĺ	0.0262	İ	6.0	İ
4	8.68- 8.88	0.0138	0.0136	1	0.0134	Ì	0.0124	Ĺ	0.0115	Ĺ	0.0110	i	0.0126	i	9.3	İ
11														· 		i

AROCLOR AVERAGE %RSD = 7.2

Aroclo	r-1260	LVL1		LVL2	-	LVL3		LVL4	-	LVL5		LVL6	- 1	MEAN		%RSD
Peak	RT WIN	.02	1	0.05	١	0.1	1	.25	1	0.5	-	1.0	I		l	R^2
1 11	.86-12.06	0.0500		0.0483	1	0.0483		0.0424		0.0425	1	0.0413		0.0455		8.4
2 12	.18-12.38	0.0463	-	0.0454	- [0.0458	j	0.0407	-	0.0411	-	0.0403	1	0.0432	1	6.6
3 12	.55-12.75	0.1222	-	0.1211	- 1	0.1241	-1	0.1146	ŧ	0.1186		0.1191	- [0.1200		2.8
4 12	.95-13.15	0.0589		0.0584	-	0.0596	- [0.0545		0.0558		0.0556		0.0571	1	3.7
5 13	.13-13.33	0.0377	1	0.0375	- 1	0.0380	- 1	0.0349	- 1	0.0356	- 1	0.0354	1	0.0365	ļ	3.7

AROCLOR AVERAGE %RSD = 5.0

FORM VI PCB-1

YZ (5 : 86815

6F 8082 INITIAL CALIBRATION OF AROCLOR 1016/1260

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75 Project: JOFS SHEET PILE

GC Column: ZB35 Instrument ID: ECD7

Calibration Date: 07/21/14

SURROGATES

							. - -		
, 	RT WIN	LVL1	•	•	•	•	•	MEAN	•
	5.13- 5.33 14.43-14.63	1.3661	1.0817	1.0669	1.0070 1.0208	0.9783	0.9559	1.0515 1.1184	9.1 14.4

Peak RT WIN .02 0.05 0.1 .25 0.5 1.0		r-1010	LVL1		LVL2		LVL3	-	LVL4	1	LVL5	- 1	LVL6	- 1	MEAN	-	*RSD
1 7.27- 7.47 0.0527 0.0481 0.0455 0.0408 0.0377 0.0349 0.0433	eak	RT WIN	. 02	•		•		•		,		•		•		•	R^2
	1 7.	.27- 7.47	0.0527														
				-													
3 8.56- 8.76 0.0277 0.0265 0.0252 0.0224 0.0214 0.0201 0.0239 4 8.69- 8.89 0.0328 0.0297 0.0279 0.0244 0.0228 0.0212 0.0265		•								•						•	

AROCLOR AVERAGE %RSD = 14.4

Aroclor-1260	1	LVL1	-	LVL2	- [LVL3		LVL4		LVL5	- 1	LVL6	ı	MEAN	İ	%RSI
Peak RT W	IN	.02		0.05	I	0.1	1	.25		0.5	1	1.0	Ī		-	R^2
1 11.72-11	.92	0.0988	1	0.0908		0.0865		0.0740	 	0.0722	- - -	0.0686		0.0818		14.€
2 12.26-12	.46	0.0957	i	0.0867	Ì	0.0839	j	0.0716	ĺ	0.0698	İ	0.0661	i	0.0790	Ĺ	14.6
3 12.54-12	. 74	0.1858		0.1704	-	0.1689	ı	0.1485	1	0.1474	1	0.1420	-	0.1605	-	10.7
4 13.10-13	.30	0.1309	- 1	0.1214	- [0.1167	- [0.1012	-	0.0989	\perp	0.0941	-	0.1105	1	13.2

AROCLOR AVERAGE %RSD = 13.3

FORM VI PCB-1

YATU WWWII

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75 Project: JOFS SHEET PILE

GC Column: ZB5 Instrument ID: ECD7

	Aroclo	r-1221	Cal
Peak	RT	RT WIN	Factor
1 2 3	6.091 6.298 6.422	5.99- 6.19 6.20- 6.40 6.32- 6.52	0.00772 0.00684 0.02014
	Aroclo	r-1232	
Peak	RT	RT WIN	Cal Factor
		7.54- 7.74 8.06- 8.26 8.25- 8.45 8.39- 8.59	0.00792 0.02446 0.01050 0.00763
Peak	Aroclo:	r-1242 RT WIN	Cal Factor
1 2 3 4	7.641 8.165 8.353 9.326	7.54- 7.74 8.06- 8.26 8.25- 8.45 9.23- 9.43	0.01529 0.04818 0.02047 0.01988
	Aroclo		Cal
Peak	RT	RT WIN	Factor
1 2 3 4	8.154 8.778 9.321 9.797	8.05- 8.25 8.68- 8.88 9.22- 9.42 9.70- 9.90	0.03055 0.01755 0.03044 0.03767

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75

Project: JOFS SHEET PILE

GC Column: ZB5

Instrument ID: ECD7

			
A:	roclo	r-1254	
			Cal
Peak	RT	RT WIN	Factor
	.143	10.04-10.2	4 0.03598
2 10	.533	10.43-10.6	3 0.02488
3 10	.675	10.57-10.7	7 0.04837
4 11	.037	10.94-11.1	.4 0.05159
5 11	.733	11.63-11.8	0.05112
A	roclo	r-1262	
			Cal
Peak	RT	RT WIN	Factor
	063	11 06 10 0	0.00000
	.963	11.86-12.0	-
	.280	12.18-12.3	
1	.652	12.55-12.7	
I	.049		
5 13	.162	13.06-13.2	26 0.05810
_ A	roclo	r-1268	
1			Cal
Peak	RT	RT WIN	Factor
1 13	.162	13.06-13.2	26 0.16503
	.231	13.13-13.3	
	.595	13.49-13.6	
	.225	14.12-14.3	

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75 Project: JOFS SHEET PILE

GC Column: ZB35 Instrument ID: ECD7

			
	Aroclo	r-1221	· ·
_			Cal
Peak	RT	RT WIN	Factor
1	6.065	5.97- 6.17	0.01356
2	6.361	6.26- 6.46	0.01330
3	6.495	6.39- 6.59	0.02335
4	7.386	7.29- 7.49	0.00770
	Aroclo	r-1232	
			Cal
Peak	RT	RT WIN	Factor
1	6.494	6.39- 6.59	0.01645
2	7.372	7.27- 7.47	0.01890
3	8.189	8.09- 8.29	0.03588
4	8.798	8.70- 8.90	0.01174
			
	Aroclo	r-1242	1
			_Cal
Peak	RT	RT WIN	Factor
1	6.489	6.39- 6.59	0.01564
2	7.366	7.27- 7.47	0.03278
3	8.182	8.08- 8.28	0.06800
4	9.263	9.16- 9.36	0.02490
	Aroclo	r-1248	Cal
Deal	RT	RT WIN	Factor
		KI WIN	FACCOL
1	7.356	7.26- 7.46	0.01614
I.	8.170	8.07- 8.27	0.04422
1	8.859	8.76- 8.96	0.02396
4	10.206	10.11-10.31	0.04565
	<u>-</u>		

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75 Project: JOFS SHEET PILE

GC Column: ZB35 Instrument ID: ECD7

	Aroclo	r-1254	G-1
Peak	RT	RT WIN	Cal Factor
1	9.910	9.81-10.01	0.03100
2 1	0.100	10.00-10.20	0.03897
3 1	0.795	10.70-10.90	0.06467
4 1	1.055	10.96-11.16	0.06573
5 1	1.821	11.72-11.92	0.04902
	Aroclo	r-1262	
			Cal
Peak	RT	RT WIN	Factor
1 1	 2.370	12.27-12.47	0.08614
	2.643	12.54-12.74	0.17319
	3.152		0.07678
	3.211		0.11751
	3.853		0.06071
	Aroclo	r-1268	
			Cal
Peak	RT	RT WIN	Factor
1 1	3.152	13.05-13.25	0.18571
	3.215		0.17538
	3.569		0.14298
	4.234		0.39624

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN FORGE

ARI Job No.: YZ75

Project: JOFS SHEET PILE

GC Column: ZB5

Intrument: ECD7

Init. Calib. Date: 07/21/14

Lab Standard ID: AR1248

Date Analyzed:09/19/14

Time Analyzed :1706

		RT W	INDOW	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
=======================================	=======	=====	=====	=======	======	=====
Aroclor-1248-1	8.16	8.05	8.25	246.1	250.0	-1.6
Aroclor-1248-2	8.78	8.68	8.88	243.3	250.0	-2.7
Aroclor-1248-3	9.32	9.22	9.42	241.0	250.0	-3.6
Aroclor-1248-4	9.80	9.70	9.90	244.8	250.0	-2.1

AVERAGE %D = 2.5

FORM VII PCB

YZIS: GOGZZ

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN FORGE

ARI Job No.: YZ75

Project: JOFS SHEET PILE

GC Column: ZB5

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed:09/19/14

Time Analyzed :1728

Lab Standard ID: AR1660

	RT W	INDOW	CALC	NOM	
RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
======	=====	=====	======	======	=====
7.63	7.54	7.74	331.9	250.0	32.7
8.16	8.07	8.27	302.4	250.0	21.0
8.35	8.25	8.45	307.7	250.0	23.1
8.78	8.68	8.88	311.2	250.0	24.5
	7.63 8.16 8.35	RT FROM 7.63 7.54 8.16 8.07 8.35 8.25	RT FROM TO	RT FROM TO AMOUNT (ng) 7.63 7.54 7.74 331.9 8.16 8.07 8.27 302.4 8.35 8.25 8.45 307.7	RT FROM TO AMOUNT (ng) (ng)

AVERAGE D = 25.3

Date Analyzed:09/19/14

Lab Standard ID: AR1660

Time Analyzed: 1728

		RT W	INDOW	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
	=====	=====	=====	=======	======	=====
Aroclor-1260-1	11.96	11.86	12.06	248.0	250.0	-0.8
Aroclor-1260-2	12.28	12.18	12.38	243.3	250.0	-2.7
Aroclor-1260-3	12.65	12.55	12.75	253.7	250.0	1.5
Aroclor-1260-4	13.05	12.95	13.15	242.6	250.0	-3.0
Aroclor-1260-5	13.23	13.13	13.33	230.3	250.0	-7.9
	•	-	•	•		

AVERAGE %D = 3.2

FORM VII PCB

YZYS:00024

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN FORGE

ARI Job No.: YZ75

Project: JOFS SHEET PILE

GC Column: ZB5

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/19/14

Lab Standard ID: AR1254 Time Analyzed :2107

		RT WINDOW		CALC	NOM		
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D	
	=====	=====	=====	======	=======	====	
Aroclor-1254-1	10.14	10.04	10.24	263.3	250.0	5.3	
Aroclor-1254-2	10.53	10.43	10.63	221.5	250.0	-11.4	
Aroclor-1254-3	10.67	10.57	10.77	256.4	250.0	2.6	
Aroclor-1254-4	11.04	10.94	11.14	257.1	250.0	2.8	
Aroclor-1254-5	11.73	11.63	11.83	262.5	250.0	5.0	

AVERAGE %D = 5.4

FORM VII PCB

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75

Project: JOFS SHEET PILE

GC Column: ZB5

Intrument: ECD7

Init. Calib. Date: 07/21/14

Lab Standard ID: AR1660

Date Analyzed: 09/19/14

Time Analyzed:2129

		RT WINDOW		CALC	NOM		
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D	
=======================================	=====	=====	=====	=======	=======	=====	
Aroclor-1016-1	7.64	7.54	7.74	260.5	250.0	4.2	
Aroclor-1016-2	8.17	8.07	8.27	237.2	250.0	-5.1	
Aroclor-1016-3	8.35	8.25	8.45	240.2	250.0	-3.9	
Aroclor-1016-4	8.78	8.68	8.88	243.9	250.0	-2.4	

AVERAGE D = 3.9

Date Analyzed: 09/19/14

Time Analyzed :2129 Lab Standard ID: AR1660

		RT W	INDOW	CALC	MOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	TMUOMA (ng)	%D
	======	======	=====	=======	=======	=====
Aroclor-1260-1	11.96	11.86	12.06	255.7	250.0	2.3
Aroclor-1260-2	12.28	12.18	12.38	249.6	250.0	-0.2
Aroclor-1260-3	12.65	12.55	12.75	260.9	250.0	4.4
Aroclor-1260-4	13.05	12.95	13.15	248.5	250.0	-0.6
Aroclor-1260-5	13.23	13.13	13.33	237.2	250.0	-5.1
	•	•	•			•

AVERAGE D = 2.5

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FORM VII PCB

YZYT MUGZE

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN FORGE

ARI Job No.: YZ75

Project: JOFS SHEET PILE

GC Column: ZB5

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed:09/20/14

Lab Standard ID: AR1242

Time Analyzed:0108

		RT WINDOW		CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT	AMOUNT	%D
				(ng)	(ng)	
	======	=====	=====	=======	=======	=====
Aroclor-1242-1	7.64	7.54	7.74	255.9	250.0	2.4
Aroclor-1242-2	8.16	8.06	8.26	241.7	250.0	-3.3
Aroclor-1242-3	8.35	8.25	8.45	239.3	250.0	-4.3
Aroclor-1242-4	9.33	9.23	9.43	241.3	250.0	-3.5
	- •	•	•	•	•	,

AVERAGE D = 3.4

YZ ('5: VUUZ'5

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN FORGE

ARI Job No.: YZ75

Project: JOFS SHEET PILE

GC Column: ZB5

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed: 09/20/14

Lab Standard ID: AR1660

Time Analyzed :0130

	RT WINDOW		CALC	NOM		
RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D	
== =====	=====	=====	======	======	=====	
7.64	7.54	7.74	263.3	250.0	5.3	
8.16	8.07	8.27	239.8	250.0	-4.1	
8.35	8.25	8.45	242.1	250.0	-3.1	
8.78	8.68	8.88	245.9	250.0	-1.6	
	7.64 8.16 8.35	RT FROM	RT FROM TO	RT FROM TO AMOUNT (ng) 7.64 7.54 7.74 263.3 8.16 8.07 8.27 239.8 8.35 8.25 8.45 242.1	RT FROM TO AMOUNT (ng) (ng)	

AVERAGE D = 3.5

Date Analyzed: 09/20/14

Lab Standard ID: AR1660

Time Analyzed :0130

		RT W	INDOW	CALC	MOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT	AMOUNT	%D
			ļ	(ng)	(ng)	
	=====	======	=====	======	======	=====
Aroclor-1260-1	11.96	11.86	12.06	263.9	250.0	5.6
Aroclor-1260-2	12.28	12.18	12.38	255.7	250.0	2.3
Aroclor-1260-3	12.65	12.55	12.75	268.4	250.0	7.4
Aroclor-1260-4	13.05	12.95	13.15	254.7	250.0	1.9
Aroclor-1260-5	13.23	13.13	13.33	243.9	250.0	-2.4
	•	•	•	•	•	

AVERAGE D = 3.9

FORM VII PCB

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN FORGE

ARI Job No.: YZ75

Project: JOFS SHEET PILE

GC Column: ZB5

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed: 09/20/14

Lab Standard ID: AR1248 Time Analyzed: 0508

COMPOUND/PEAK NO.	RT	RT WI FROM	INDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
	== =====	=====	=====	=======	======	=====
Aroclor-1248-1	8.16	8.05	8.25	249.9	250.0	-0.0
Aroclor-1248-2	8.78	8.68	8.88	246.9	250.0	-1.2
Aroclor-1248-3	9.33	9.22	9.42	246.2	250.0	-1.5
Aroclor-1248-4	9.80	9.70	9.90	249.0	250.0	-0.4

AVERAGE %D = 0.8

YETO BOBUE

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN FORGE

ARI Job No.: YZ75

Project: JOFS SHEET PILE

GC Column: ZB5

Intrument: ECD7

Init. Calib. Date: 07/21/14

Lab Standard ID: AR1660

Date Analyzed:09/20/14

Time Analyzed:0530

COMPOUND/PEAK NO.	RT	RT WI FROM	INDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
	: =====	=====	=====	======	=======	=====
Aroclor-1016-1	7.64	7.54	7.74	265.8	250.0	6.3
Aroclor-1016-2	8.16	8.07	8.27	241.1	250.0	-3.6
Aroclor-1016-3	8.35	8.25	8.45	244.9	250.0	-2.0
Aroclor-1016-4	8.78	8.68	8.88	248.8		

AVERAGE D = 3.1

Date Analyzed:09/20/14

Lab Standard ID: AR1660 Time Analyzed: 0530

		RT WINDOW		CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	*D
	=====	=====	=====	=======	======	=====
Aroclor-1260-1	11.96	11.86	12.06	267.8	250.0	7.1
Aroclor-1260-2	12.28	12.18	12.38	260.0	250.0	4.0
Aroclor-1260-3	12.65	12.55	12.75	272.6	250.0	9.0
Aroclor-1260-4	13.05	12.95	13.15	260.4	250.0	4.2
Aroclor-1260-5	13.23	13.13	13.33	249.7	250.0	-0.1

AVERAGE D = 4.9

FORM VII PCB

Yara galan

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75

Project: JOFS SHEET PILE

GC Column: ZB35

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed: 09/19/14

Time Analyzed: 1706

Lab Standard ID: AR1248

COMPOUND/PEAK NO.	RT	RT WI FROM	MDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D	
	=====	=====	=====		======		
Aroclor-1248-1	7.36	7, 26	7.46	300.8	250.0	20.3	
Aroclor-1248-2	8.17	8.07	8.27	293.6	250.0	17.4	
Aroclor-1248-3	8.86	8.76	8.96	398.4	250.0	59.4	<-
Aroclor-1248-4	10.21	10.11	10.31	299.0	250.0	19.6	İ
	·	'					

AVERAGE D = 29.2

FORM VII PCB

Yaro: 00050

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN FORGE

ARI Job No.: YZ75

Project: JOFS SHEET PILE

GC Column: ZB35

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed:09/19/14

Lab Standard ID: AR1660

Time Analyzed :1728

		RT W	INDOW	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	% D
=======================================	========	=====	=====	======	=======	=====
Aroclor-1016-1	7.36	7.27	7.47	293.8	250.0	17.5
Aroclor-1016-2	8.17	8.08	8.28	271.9	250.0	8.8
Aroclor-1016-3	8.65	8.56	8.76	281.5	250.0	12.6
Aroclor-1016-4	8.79	8.69	8.89	277.2	250.0	10.9

AVERAGE D = 12.4

Date Analyzed:09/19/14

Lab Standard ID: AR1660

Time Analyzed :1728

		RT WINDOW		CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
=======================================	=====	=====	=====	======	======	=====
Aroclor-1260-1	11.82	11.72	11.92	206.8	250.0	-17.3
Aroclor-1260-2	12.36	12.26	12.46	217.1	250.0	-13.1
Aroclor-1260-3	12.63	12.54	12.74	220.5	250.0	-11.8
Aroclor-1260-4	13.20	13.10	13.30	210.7	250.0	-15.7
	•	•	•	•	•	•

AVERAGE %D = 14.5

Yart Budge

FORM VII PCB

1215:00031

7F PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN FORGE

ARI Job No.: YZ75

Project: JOFS SHEET PILE

GC Column: ZB35

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/19/14

Lab Standard ID: AR1254

Time Analyzed :2107

		RT W	INDOW	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
=======================================	= ======	=====	=====	======	=======	====
Aroclor-1254-1	9.91	9.81	10.01	300.3	250.0	20.1
Aroclor-1254-2	10.10	10.00	10.20	297.0	250.0	18.8
Aroclor-1254-3	10.80	10.70	10.90	272.8	250.0	9.1
Aroclor-1254-4	11.06	10.96	11.16	291.2	250.0	16.5
Aroclor-1254-5	11.82	11.72	11.92	294.5	250.0	17.8

AVERAGE D = 16.5

FORM VII PCB

YZ/b: 66635

7F PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN FORGE

ARI Job No.: YZ75

Project: JOFS SHEET PILE

GC Column: ZB35

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed:09/19/14

Lab Standard ID: AR1660

Time Analyzed :2129

		RT W	INDOM	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
	:== =====	=====	=====	======	======	====
Aroclor-1016-1	7.37	7.27	7.47	292.3	250.0	16.9
Aroclor-1016-2	8.18	8.08	8.28	271.7	250.0	8.7
Aroclor-1016-3	8.66	8.56	8.76	281.5	250.0	12.6
Aroclor-1016-4	8.79	8.69	8.89	276.5	250.0	10.6

AVERAGE D = 12.2

Date Analyzed:09/19/14

Lab Standard ID: AR1660

Time Analyzed:2129

		RT W	INDOW	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	ТО	AMOUNT (ng)	AMOUNT (ng)	%D
=======================================	== =====	=====	=====	=======	======	=====
Aroclor-1260-1	11.82	11.72	11.92	212.8	250.0	-14.9
Aroclor-1260-2	12.36	12.26	12.46	217.7	250.0	-12.9
Aroclor-1260-3	12.64	12.54	12.74	227.6	250.0	-9.0
Aroclor-1260-4	13.20	13.10	13.30	213.8	250.0	-14.5

AVERAGE D = 12.8

YZ (5: EUW4E

FORM VII PCB

YEIG: BUBHI

7F PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN FORGE

ARI Job No.: YZ75

Project: JOFS SHEET PILE

GC Column: ZB35

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed:09/20/14

Lab Standard ID: AR1242

Time Analyzed:0108

COMPOUND/PEAK NO.	RT	RT WI FROM	INDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
	======		=====	=======	=======	=====
Aroclor-1242-1	6.49	6.39	6.59	293.4	250.0	17.3
Aroclor-1242-2	7.37	7.27	7.47	295.7	250.0	18.3
Aroclor-1242-3_	8.18	8.08	8.28	285.4	250.0	14.2
Aroclor-1242-4	9.26	9.16	9.36	284.0	250.0	13.6
	•	•		,	•	

AVERAGE D = 15.8

YZ (5: BUBHZ

7F PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75

Project: JOFS SHEET PILE

GC Column: ZB35

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed:09/20/14

Lab Standard ID: AR1660 Time Analyzed:0130

		RT W	NDOW	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT	AMOUNT	%D
				(ng)	(ng)	
	=====	=====	=====	=======	======	=====
Aroclor-1016-1	7.36	7.27	7.47	293.0	250.0	17.2
Aroclor-1016-2	8.18	8.08	8.28	273.7	250.0	9.5
Aroclor-1016-3	8.65	8.56	8.76	283.3	250.0	13.3
Aroclor-1016-4	8.79	8.69	8.89	278.3	250.0	11.3
	•	•	•	•	•	•

AVERAGE D = 12.8

Date Analyzed:09/20/14

Lab Standard ID: AR1660 Time Analyzed:0130

		RT W	INDOW	CALC	NOM	, ,
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT	AMOUNT	%D
				(ng)	(ng)	
	=====		=====	======	======	====
Aroclor-1260-1	11.82	11.72	11.92	224.2	250.0	-10.3
Aroclor-1260-2	12.36	12.26	12.46	230.3	250.0	-7.9
Aroclor-1260-3	12.64	12.54	12.74	234.7	250.0	-6.1
Aroclor-1260-4	13.20	13.10	13.30	220.5	250.0	-11.8
	•		•	,	•	·

AVERAGE D = 9.0

YAIS: BEBUYS

FORM VII PCB

YZ (5 BEEKH

7F PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN FORGE

ARI Job No.: YZ75

Project: JOFS SHEET PILE

GC Column: ZB35

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed: 09/20/14

Lab Standard ID: AR1248 Time Analyzed:0508

		RT W	INDOW	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	% D
=======================================	=====	=====	=====	=======	=======	=====
Aroclor-1248-1	7.36	7.26	7.46	302.6	250.0	21.0
Aroclor-1248-2	8.18	8.07	8.27	295.6	250.0	18.2
Aroclor-1248-3	8.86	8.76	8.96	279.2	250.0	11.7
Aroclor-1248-4	10.21	10.11	10.31	305.9	250.0	22.4
	•	•		'		

AVERAGE D = 18.3

7F PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN FORGE

ARI Job No.: YZ75

Project: JOFS SHEET PILE

GC Column: ZB35

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed: 09/20/14

Lab Standard ID: AR1660

Time Analyzed:0530

		RT W	INDOW	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	% D
	=== =====	=====	======	=======	=======	====
Aroclor-1016-1	7.36	7.27	7.47	291.0	250.0	16.4
Aroclor-1016-2	8.18	8.08	8.28	271.9	250.0	8.8
Aroclor-1016-3	8.65	8.56	8.76	282.7	250.0	13.1
Aroclor-1016-4	8.79	8.69	8.89	278.2	250.0	11.3

AVERAGE D = 12.4

Date Analyzed: 09/20/14

Lab Standard ID: AR1660

Time Analyzed :0530

COMPOUND/PEAK NO.	RT	RT W	INDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
=======================================	=====	=====	=====	======	======	=====
Aroclor-1260-1	11.82	11.72	11.92	224.0	250.0	-10.4
Aroclor-1260-2	12.36	12.26	12.46	230.0	250.0	-8.0
Aroclor-1260-3	12.64	12.54	12.74	235.7	250.0	-5.7
Aroclor-1260-4	13.20	13.10	13.30	221.1	250.0	-11.5

AVERAGE %D = 8.9

1712: ARMAP

FORM VII PCB

YE'TS: BUBHI

FORM 8 PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN FORGE

ARI Job No.: YZ75

Project: JOFS SHEET PILE

GC Column: ZB5 ID: 0.53 (mm)

Instrument ID: ECD7

Init. Calib. Date: 07/21/14

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

			1		IS1 AREA	 RT	IS2	RT
				=======	=======	=======	-====================================	======
			!	AL MIDPT	4434421	2.698	4077244	!!
			!	ER LIMIT	8868842	2.798	8154488	
				ER LIMIT	2217210	2.598	2038622	! !
	CLIENT	LAB	DATE	1	IS1		IS2	
i	SAMPLE NO.	SAMPLE ID	ANALYZE	D TIME	AREA	RT	AREA	RT
ĺ	=======================================						=======	======
01	ZZZZZ	ZZZZZ	07/21/1	4 1626	4373805	2.692	3760196	14.794
02	İ	0.25PPMAR166	07/21/1	4 1648	4434421	2.698	4077244	14.794
03		0.02PPMAR166	07/21/1	4 1710	4447124	2.695	3891807	14.794
04	ĺ	0.05PPMAR166	07/21/1	4 1732	4441352	2.694	3882218	14.795
05		1PPMAR1660	07/21/1	4 1754	4414652	2.693	3889578	14.795
06		0.1PPMAR1660	07/21/1	4 1816	4521857	2.697	3895919	14.795
07		0.5PPMAR1660	07/21/1	4 1837	4493869	2.693	3945031	14.795
08		AR1242	07/21/1	4 1859	4438700	2.692	3879215	14.795
09		AR1248	07/21/1	4 1921	4414839	2.697	3887155	14.795
10		AR1254	07/21/1	4 1943	4508938	2.695	3960286	14.795
11		AR2162	07/21/1	4 2005	4494447	2.696	3952241	14.795
12		AR3268	07/21/1	4 2027	4552734	2.702	4020488	14.795
13	ZZZZZ	ZZZZZ	07/21/1	4 2049	4445508	2.694	3936762	14.795
14	ZZZZZ	ZZZZZ	07/21/1	4 2111	4558602	2.696	4045633	14.795
15	ZZZZZ	ZZZZZ	07/21/1	4 2133	4461342	2.697	4016945	14.795
16	ZZZZZ	ZZZZZ	07/21/1	4 2154	4529995	2.696	4048326	14.794
17	ZZZZZ	ZZZZZ	07/21/1	4 2216	4527689	2.697	4039776	14.794
18	ZZZZZ	ZZZZZ	07/21/1	4 2238	4512425	2.694	4015293	14.794
19		AR1248	09/19/1	4 1706	5084606	2.698	4863476	14.794
20		AR1660	09/19/1	4 1728	3601498	2.694	4264893	14.795
21	ZZZZZ	ZZZZZ	09/19/1	4 1750	4922484	2.698	4576436	14.794
22	ZZZZZ	ZZZZZ	09/19/1	4 1812	5231575	2.702	4997159	14.793
23	ZZZZZ	ZZZZZ	09/19/1	4 1834	4980818	2.699	4621050	14.793
24		AR1254	09/19/1	4 2107	5058352	2.700	4186761	14.794
25		AR1660	09/19/1	4 2129	4615062	2.702	4106172	14.794
26		AR1242	09/20/1	4 0108	5417163	2.703	4160853	14.794
27		AR1660	09/20/1	4 0130	4679826	2.700	4027634	14.794
28	SSP-SOLIDS-2	YZ75A	09/20/1	4 0235	4828561	2.701	3928957	14.793
29		AR1248	09/20/1	4 0508	5158208	2.704	4516663	14.793
30		AR1660	09/20/1	4 0530	4694209	2.701	4060251	14.794
		l		İ	·		l	li

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min

IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

ge 1 of 1

FORM VIII PCB

FORM 8 PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN FORGE

ARI Job No.: YZ75

Project: JOFS SHEET PILE

GC Column: ZB35 ID: 0.53 (mm)

Instrument ID: ECD7

Init. Calib. Date: 07/21/14

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

			1		IS1		IS2	
			į		AREA	RT	AREA	RT
			======	=====	=======	======	=======	=====
			ICAL	MIDPT	11221020	3.068	7927142	15.138
			UPPER		22442040	3.168	15854284	15.238
			LOWER	LIMIT	5610510	2.968	3963571	15.038
Į	CLIENT	LAB	DATE		IS1		IS2	
ļ	SAMPLE NO.	SAMPLE ID	ANALYZED	TIME	AREA	RT	AREA	RT
	=======================================		=========	=====		======	=======	======
01	ZZZZZ	ZZZZZ	07/21/14	1626	11004730	3.063	7358659	15.138
02		0.25PPMAR166	07/21/14	1648	11221020	3.068	7527142	15.138
03		0.02PPMAR166	07/21/14	1710	11165593	3.066	7592758	15.138
04		0.05PPMAR166	07/21/14	1732	11143504	3.065	<u>:</u>	15.139
05		1PPMAR1660	07/21/14	1754	11066585	3.065	7627214	15.138
06		0.1PPMAR1660	07/21/14	1816	11325344	3.067	7687777	15.138
07		0.5PPMAR1660	07/21/14	1837	11352435	3.063	7765451	15.138
08		AR1242	07/21/14	1859	11252651	3.063	7692669	15.138
09		AR1248	07/21/14	1921	11180919	3.066	7655141	15.138
10	,	AR1254	07/21/14	1943	11293843	3.066	7784494	15.138
11		AR2162	07/21/14	2005	11029310	3.067	7767574	15.137
12		AR3268	07/21/14	2027	11362773	3.070	7876862	15.138
13	ZZZZZ	ZZZZZ	07/21/14	2049	11184271	3.065	7717457	15.139
14	ZZZZZ	ZZZZZ	07/21/14	2111	11369418	3.066	7903232	15.138
15	ZZZZZ	ZZZZZ	07/21/14	2133	11175868	3.067	7850594	15.137
16	ZZZZZ	ZZZZZ	07/21/14	2154	11269109	3.066	7889154	15.137
17	ZZZZZ	ZZZZZ	07/21/14	2216	11177181	3.066	7868041	15.138
18	ZZZZZ	ZZZZZ	07/21/14	2238	11096232	3.064	7812050	15.137
19	i	AR1248	09/19/14	1706	8620061	3.061	8237403	15.132
20		AR1660	09/19/14	1728	7669744	3.059	7385174	15.133
21	ZZZZZ	ZZZZZ	09/19/14	1750	10737574	3.061	7837014	15.132
22	ZZZZZ	22222	09/19/14	1812	11464103	3.066	8620816	15.132
23	ZZZZZ	ZZZZZ	09/19/14	1834	10863124	3.062	7979226	15.133
24	į	AR1254	09/19/14	2107	8977955	3.065	7089588	15.132
25	,	AR1660	09/19/14	2129	7664687	3.066	6756979	15.132
26		AR1242	09/20/14	0108	9231366	3.066	7023173	15.132
27		AR1660	09/20/14	0130	7770669	3.065	6609828	15.132
28	SSP-SOLIDS-2	YZ75A	09/20/14	0235	10437953	3.064	7295314	15.132
29		AR1248	09/20/14	0508	8863276	3.067	7646947	15.132
30		AR1660	09/20/14	0530	7902677	3.065	6867926	15.132
		i i		i	İİ	_		ii

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min

IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

ge 1 of 1

FORM VIII PCB

Analytical Resources, Inc. Report No. ZAO3, dated Sept. 26, 2014



26 September 2014

Miles Dyer Jorgensen Forge Corporation 8531 East Marginal Way South Seattle, WA 98108

RE: JFOS Sheet Pile ARI Job No.: ZA03

Dear Miles:

Please find enclosed the original Chain-of-Custody (COC) record, sample receipt documentation, and the final data for the sample from the project referenced above. Analytical Resources, Inc. (ARI) accepted one soil sample on September 12, 2014. For further details regarding sample receipt please refer to the enclosed Cooler Receipt Form. The sample was analyzed for PCBs as requested.

There were no anomalies associated with the analysis of this sample.

An electronic copy of this report and all supporting raw data will remain on file with ARI. Should you have any questions regarding these results, please feel free to contact me at your convenience.

Respectfully,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com
www.arilabs.com

cc: Dee Gardner, Sound Earth, Inc. eFile ZA03

Enclosures

Chain of Custody Record & Laboratory Analysis Reques	Cł	nain of Custod	v Record &	Laboratory	/ Anah	ysis Reques
--	----	----------------	------------	------------	--------	-------------

AF	I Assigned Number:	Turn-around Requested: STADARD Phone:			Page: Date:	te: Ice Present? \square			Analytical Resources, Incorporated Analytical Chemists and Consultants 4611 South 134th Place, Suite 100 Tukwila, WA 98168 206-695-6200 206-695-6201 (fax)				
	ent Contact: MILES DYES					No. of Coolers:	(T	Coole Temp	er os: 15.	\		www.a	rilabs.com
Cli	ent Project Name:								Analysis	Requested	<u> </u>		Notes/Comments
یا	IFOS SHEET PIVE												
Cli	ent Project #:	Samplers:	DOHG-			74 %							
	Sample ID	Date	Time	Matrix	No Containers	अभूज				1			
SS	P-SOLI DS - 20140912-	09.12.14	1500	SOIL	1	X	-						
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•	CC: DEECHOONED AT	(Signature) (Signature)						(Signature)			(Signature)		
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) (AM)	Company Company:		Company;	10 Up		<u> </u>	Company		Company	···		
• 1	lare III	50WD	EARTH-		AR								
• (9 Aeocions	Date & Time. 09.12.2014 @ 1540 Date & Time			14	4 1540 Date & Time.			Date & Time	Date & Time:			

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or cosigned agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

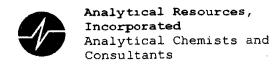


Cooler Receipt Form

ARI Client	SONTONGE	Project Name:	JFOS S	meet	Pile	
COC No(s)	NA	Delivered by: Fed-Ex			_	
Assigned ARI Job No. 2		Tracking No.				NA
Preliminary Examination Phase:						
Were intact, properly signed and o	dated custody seals attached to	the outside of to cooler?			YES	No
Were custody papers included wit	th the cooler?	.,		(YES	NO
Were custody papers properly fille					YES	NO
Temperature of Cooler(s) (°C) (re-	commended 2.0-6.0 °C for cher	nistry)			·	
If cooler temperature is out of corr	apliance fill out form 00070F	. 1 1 .			# <u>905</u>	79952
Cooler Accepted by.	AV		Time	1540		
	Complete custody forms a	and attach all shipping do	cuments			
Log-In Phase:						
Was a temperature blank included	d in the cooler?				YES	(NO)
What kind of packing material w	vas used? Bubble Wrap	Wei Ice Gel Packs Bagg	ies Foam Blo	ck Paper C	Other:	
Was sufficient ice used (if appropri	riate)?			NA	YES	₩)
Were all bottles sealed in individu	al plastic bags?		.		YES	(NO)
Did all bottles arrive in good cond	ition (unbroken)?				(ES	NO
Were all bottle labels complete an	nd legible?		•••		(YES,	NO
Did the number of containers liste					Æ\$	NO
Did all bottle labels and tags agree	*				(ES	NO
Were all bottles used correct for the				<u> </u>	(ES	NO
Do any of the analyses (bottles) re	• • •	,	VOCs)	NA CHA	YES	NO
Were all VOC vials free of air bub				○NA	YES	NO
Was sufficient amount of sample solution Date VOC Trip Blank was made a				NA	(YES	. NO
Was Sample Split by ARI NA					Split by:_	
via campio spin sy via i						
Samples Logged by:	Date.	. 4/12/14	Time:	1653	<u> </u>	
	** Notify Project Manage	r of discrepancies or cond	cems **			
				<u> </u>	*****	
Sample ID on Bottle	Sample ID on COC	Sample ID on Bo	ttle	Samp	le ID on C	OC
		·				
					 	
Additional Notes, Discrepancies	s. & Resolutions:					
,	•					
By: Dat	e:	· · · · · · · · · · · · · · · · · · ·				
Small Air Bubbles Peabubble2mm 2-4 mm	II Date to be a second i	Small → "sm" (<2 mm)				
2-4 mm	>4 mm	Peabubbles > "pb" (2 to <		<u> </u>		
		Large → "ig" (4 to < 6 mm				
		Headspace → "hs" (>6 mi	m)			

0016F 3/2/10 Cooler Receipt Form

Revision 014



Cooler Temperature Compliance Form

Sample ID Bottle Count COOLETS: Temperature(°C): Sample ID Bottle Count Bottle Type Coolers: Temperature(°C): Sample ID Bottle Count Coolers: Temperature(°C): Sample ID Bottle Count Bottle Type Coolers: Temperature(°C): Sample ID Bottle Count Bottle Type Coolers: Temperature(°C): Sample ID Bottle Count Bottle Type Coolers: Temperature(°C): Sample ID Bottle Count Bottle Type	Cooler#:	Temper	ature(°C): [5.	
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	Sample ID		Bottle Count	Bottle Type
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Completed by: A / Date: CHOTH Time: 1/2-92		· · · · · · · · · · · · · · · · · · ·		
Completed by: A / Date: CHO/III Time: 1/2-92				
Completed by: A / Date: CITOTILL Time: 1/2-92				
Completed by: A / Date: CITOTILL Time: 1/2-82				
Completed by: A / Date: CHO/III Time: 1/2-92				
Completed by: A / Date: CITOLIT Time: 1/2-82				
Completed by: A / Date: CITOTILL Time: 1/2-C2				
Completed by: A / Date: CITOLIT Time: 1/-92	1			
Completed by: A Date: CITOTILL Time: 11-02			^	
	Completed by:_		Date	9/12/14 Time /653

00070F

Cooler Temperature Compliance Form

Version 000

ZAUS: UUUU4

3/3/09

Sample ID Cross Reference Report



ARI Job No: ZA03 Client: Jorgensen Forge

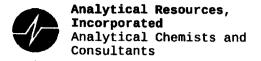
Project Event: N/A

Project Name: JFOS Sheet Pile

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	SSP-SOLIDS-20140912	ZA03A	14-18685	Soil	09/12/14 15:00	09/12/14 15:40

Printed 09/12/14 Page 1 of 1

lade: eeest



Data Reporting Qualifiers Effective 12/31/13

Inorganic Data

- U Indicates that the target analyte was not detected at the reported concentration
- * Duplicate RPD is not within established control limits
- B Reported value is less than the CRDL but ≥ the Reporting Limit
- N Matrix Spike recovery not within established control limits
- NA Not Applicable, analyte not spiked
- H The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
- L Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

- U Indicates that the target analyte was not detected at the reported concentration
- Flagged value is not within established control limits
- B Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
- J Estimated concentration when the value is less than ARI's established reporting limits
- D The spiked compound was not detected due to sample extract dilution
- E Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Laboratory Quality Assurance Plan

Page 1 of 3

Version 14-003 12/31/13

Laus: uuuss



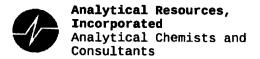
Analytical Resources, Incorporated Analytical Chemists and Consultants

- Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).
- S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
- NA The flagged analyte was not analyzed for
- NR Spiked compound recovery is not reported due to chromatographic interference
- NS The flagged analyte was not spiked into the sample
- M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
- Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.
- EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" (Dioxin/Furan analysis only)
- C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
- P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference
- X Analyte signal includes interference from polychlorinated diphenyl ethers. (Dioxin/Furan analysis only)
- Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. (Dioxin/Furan analysis only)

Laboratory Quality Assurance Plan

Page 2 of 3

Version 14-003 12/31/13



Geotechnical Data

- A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
- F Samples were frozen prior to particle size determination
- SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
- SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
- Weight of sample in some pipette aliquots was below the level required for accurate weighting

LAUS: BUUBE

ANALYTICAL RESOURCES INCORPORATED

Sample ID: SSP-SOLIDS-20140912

SAMPLE

ORGANICS ANALYSIS DATA SHEET PCB by GC/ECD Method SW8082A Extraction Method: SW3546

Page 1 of 1

Lab Sample ID: ZAO3A LIMS ID: 14-18685

Matrix: Soil

Data Release Authorized:

Reported: 09/26/14

Date Extracted: 09/18/14 Date Analyzed: 09/23/14 21:51 Instrument/Analyst: ECD5/JGR

GPC Cleanup: No Sulfur Cleanup: Yes Acid Cleanup: Yes Florisil Cleanup: No QC Report No: ZA03-Jorgensen Forge

Project: JFOS Sheet Pile

Date Sampled: 09/12/14 Date Received: 09/12/14

Sample Amount: 5.01 g-dry-wt

Final Extract Volume: 2.50 mL Dilution Factor: 10.0 Silica Gel: Yes

Percent Moisture: 0.6%

CAS Number	Analyte	TOO	Result
12674-11-2	Aroclor 1016	100	< 100 U
53469-21-9	Aroclor 1242	100	< 100 U
12672-29-6	Aroclor 1248	100	3,600
11097-69-1	Aroclor 1254	100	5,700 E
11096-82-5	Aroclor 1260	100	1,500
11104-28-2	Aroclor 1221	100	< 100 U
11141-16-5	Aroclor 1232	100	< 100 U
37324-23-5	Aroclor 1262	100	< 100 U
11100-14-4	Aroclor 1268	100	< 100 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	NR
Tetrachlorometaxylene	95.2%

FORM I

ENDING SUAL

ANALYTICAL (RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET PCB by GC/ECD Method SW8082A Extraction Method: SW3546

Page 1 of 1

Lab Sample ID: ZA03A LIMS ID: 14-18685

Matrix: Soil

Data Release Authorized:

Reported: 09/26/14

Date Extracted: 09/18/14 Date Analyzed: 09/24/14 08:55 Instrument/Analyst: ECD5/JGR

GPC Cleanup: No Sulfur Cleanup: Yes Acid Cleanup: Yes Florisil Cleanup: No Sample ID: SSP-SOLIDS-20140912

DILUTION

QC Report No: ZA03-Jorgensen Forge

Project: JFOS Sheet Pile

Date Sampled: 09/12/14 Date Received: 09/12/14

Sample Amount: 5.01 g-dry-wt

Final Extract Volume: 2.50 mL Dilution Factor: 50.0

Silica Gel: Yes

Percent Moisture: 0.6%

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	500	< 500 U
53469-21-9	Aroclor 1242	500	< 500 U
12672-29-6	Aroclor 1248	500	4,400
11097-69-1	Aroclor 1254	500	7,000
11096-82-5	Aroclor 1260	500	1,900
11104-28-2	Aroclor 1221	500	< 500 U
11141-16-5	Aroclor 1232	500	< 500 U
37324-23-5	Aroclor 1262	500	< 500 U
11100-14-4	Aroclor 1268	500	< 500 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

FORM I

LAUS WUMIN



ORGANICS ANALYSIS DATA SHEET PCB by GC/ECD Method SW8082A Extraction Method: SW3546

Page 1 of 1

Lab Sample ID: MB-091814

LIMS ID: 14-18685

Matrix: Soil

Data Release Authorized:

Reported: 09/26/14

Date Extracted: 09/18/14 Date Analyzed: 09/23/14 13:26 Instrument/Analyst: ECD5/JGR

GPC Cleanup: No Sulfur Cleanup: Yes

Acid Cleanup: Yes Florisil Cleanup: No Sample ID: MB-091814

METHOD BLANK

QC Report No: ZA03-Jorgensen Forge

Project: JFOS Sheet Pile

Date Sampled: NA Date Received: NA

Sample Amount: 12.5 g
Final Extract Volume: 2.50 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	LOQ	Result
12674-11-2	Aroclor 1016	4.0	< 4.0 U
53469-21-9	Aroclor 1242	4.0	< 4.0 U
12672-29-6	Aroclor 1248	4.0	< 4.0 U
11097-69-1	Aroclor 1254	4.0	< 4.0 U
11096-82-5	Aroclor 1260	4.0	< 4.0 U
11104-28-2	Aroclor 1221	4.0	< 4.0 U
11141-16-5	Aroclor 1232	4.0	<~4.0 U
37324-23-5	Aroclor 1262	4.0	< 4.0 U
11100-14-4	Aroclor 1268	4.0	< 4.0 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	80.0%
Tetrachlorometaxylene	69.8%

FORM I

ZABU: UBBIE



ORGANICS ANALYSIS DATA SHEET PCB by GC/ECD Method SW8082A Page 1 of 1

Lab Sample ID: LCS-091814

LIMS ID: 14-18685

Matrix: Soil

Data Release Authorized:

Reported: 09/26/14

Date Extracted LCS/LCSD: 09/18/14

Date Analyzed LCS: 09/23/14 13:46

LCSD: 09/23/14 14:06

Instrument/Analyst LCS: ECD5/JGR

LCSD: ECD5/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes Acid Cleanup: Yes

Florisil Cleanup: No

Sample ID: LCS-091814 LCS/LCSD

QC Report No: ZA03-Jorgensen Forge Project: JFOS Sheet Pile

Date Sampled: NA Date Received: NA

Sample Amount LCS: 12.5 g-dry-wt

LCSD: 12.5 g-dry-wt

Final Extract Volume LCS: 2.50 mL

LCSD: 2.50 mL

Dilution Factor LCS: 1.00

LCSD: 1.00

Silica Gel: Yes

Percent Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Aroclor 1016	72.8	101	72.1%	73.4	101	72.7%	0.8%
Aroclor 1260	78.6	101	77.8%	80.4	101	79.6%	2.3%

PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	74.8%	78.5%
Tetrachlorometaxylene	66.5%	65.8%

Results reported in µg/kg (ppb) RPD calculated using sample concentrations per SW846.



SW8082/PCB SOIL/SOLID/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: ZA03-Jorgensen Forge Project: JFOS Sheet Pile

Client ID	DCBP % REC	DCBP	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-091814	80.0%	59-115	69.8%	58-112	0
LCS-091814	74.8%	59-115	66.5%	58-112	ŏ
LCSD-091814	78.5%	59-115	65.8%	58-112	0
SSP-SOLIDS-20140912	NR	47-120	95.2%	53-116	0
SSP-SOLIDS-20140912 DL	D	47-120	Ð	53-116	0

Microwave (MARS) Control Limits PCBSMI Prep Method: SW3546 Log Number Range: 14-18685 to 14-18685

PCB METHOD BLANK SUMMARY

BLANK NO.

ZA03MBS1

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET PILE

Lab Sample ID: ZA03MBS1

Lab File ID: 0923A017

Date Extracted: 09/18/14

Matrix: SOLID

Date Analyzed: 09/23/14

Instrument ID: ECD5

Time Analyzed: 1326

GC Columns: ZB5/ZB35

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT	LAB	DATE
	SAMPLE NO.	SAMPLE ID	ANALYZED
	=======================================	========	========
01	ZA03LCSS1	ZA03LCSS1	09/23/14
02	ZA03LCSDS1	ZA03LCSDS1	09/23/14
03	SSF SOLIDS-20140912	ZA03A	09/23/14
04	SSP-SOLIDS-20140912	ZA03A	09/24/14

ALL RUNS ARE DUAL COLUMN

8082 INITIAL CALIBRATION OF AROCLOR 1016/1260

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB5

Instrument ID: ECD5

Calibration Date: 09/05/14

SURROGATES

	RT	WIN	1	LVL1	1	LVL2	1	LVL3	1	LVL4	.	LVL5	l	LVL6	1	MEAN	1	%RSD
X	4.28	4.48	1	.2295	:	1.2484 1.2664	1	1.2537 1.1646	1	1.2320 1.0723		1.1646 0.9683		1.1619 0.9566		1.2150 1.1410	1	3.4 15.7

-						-		-			LVL5 0.5	•				•	 %RSD R^2
2 3	6.34- 6 6.49- 6	.69	0.1249 0.0563	1	0.1191 0.0530	İ	0.1154 0.0505		0.1094 0.0472	ĺ	0.0313 0.1013 0.0433 0.0310		0.0996 0.0420	1	0.1116 0.0487	Ì	9.0 11.4

AROCLOR AVERAGE %RSD = 9.4

roclor-1260	LVL1	-	LVL2		LVL3		LVL4	l	LVL5		LVL6	MEAN	*RSI
eak RT WIN	1 .02	1	0.05		0.1		.25		0.5		1.0	 	R^:
1 9.83-10.0	3 0.0562		0.0532		0.0510	}	0.0481	1	0.0436	1	0.0428	0.0491	10.
2 10.14-10.3	4 0.0526	ı	0.0504	- [0.0491	İ	0.0466		0.0426		0.0419	0.0472	9.3
3 10.52-10.7	2 0.1412		0.1395	l	0.1245	İ	0.1176	1	0.1073		0.1076	0.1230	12.3
4 10.92-11.1	2 0.0621	1	0.0602	1	0.0594	- 1	0.0572		0.0528	-	0.0525	0.0574	6.9
5 11.10-11.3	0 0.0399	- 1	0.0395	- 1	0.0389	-	0.0372		0.0340	-	0.0335	0.0372	7.0

AROCLOR AVERAGE %RSD = 9.3

6F 8082 INITIAL CALIBRATION OF AROCLOR 1016/1260

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB35 Instrument ID: ECD5

Calibration Date: 09/05/14

SURROGATES

R	T WIN	LVL1	LVL2	LVL3	•			•	
•	•		•	1.3321 1.2538	1.2953	•	1.2017 1.0080	1.2903	5.0 10.7

									- -								۱.
Aroc	lor-1016	LVL1	1	LVL2	1	TAT3	I	LVL4	-	LVL5	-	LVL6	١	MEAN	i	%RSD	i
Peak	RT WIN	.02	1	0.05	-1	0.1	1	.25	-	0.5	- [1.0			1	R^2	-
												- 					-
1	6.15- 6.35	0.0605	-	0.0570	-	0.0551	1	0.0509	- 1	0.0462	ļ	0.0436		0.0522		12.5	1
2	6.78- 6.98	0.1241		0.1148	-	0.1121	-	0.1067		0.0985	1	0.0946	-	0.1085		10.0	1
3	7.16- 7.36	0.0303	-	0.0286	-1	0.0287	-	0.0269	- 1	0.0257	1	0.0250		0.0275		7.3	-
4	7.27- 7.47	0.0364	-	0.0334	-	0.0326		0.0300		0.0279	-	0.0268	-	0.0312	\perp	11.6	١
																	- 1

AROCLOR AVERAGE %RSD = 10.4

	-				- 								 -		
Aroclor-1260	LVL1	1	LVL2	-	LVL3	1	LVL4	-	LVL5		LVL6	-	MEAN	1	*RSD
Peak RT WIN	.02	- 1	0.05	-	0.1		. 25		0.5	1	1.0	-		-	R^2
						- -	-								-
1 10.22-10.42	0.0809	-	0.0757	-	0.0731	- 1	0.0688	- 1	0.0628	- 1	0.0601	- [0.0702	-	11.3
2 10.67-10.87	0.0852		0.0799		0.0786	-	0.0755		0.0693	- 1	0.0671	- 1	0.0759	-	9.0
3 10.94-11.14	0.1797		0.1666	1	0.1612	-	0.1542	-	0.1411		0.1359	1	0.1564		10.4
4 11.52-11.72	0.1173		0.1149	T	0.1111		0.1063	- 1	0.0977	- 1	0.0948	-	0.1070		8.6
							-								

AROCLOR AVERAGE %RSD = 9.8

Lab Name: ANALYTICAL RESOURCES INC

Client: JOGENSEN FORGE

_ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB5

Instrument ID: ECD5

Calibration Date: 09/05/14

	_ 		
Peak	Aroclo:	r-1221 RT WIN	Cal Factor
1 2 3	3.360 4.748 5.031	3.26- 3.46 4.65- 4.85 4.93- 5.13	0.00992 0.01493 0.03373
Peak	Aroclo:	r-1232 RT WIN	Cal Factor
1 2 3 4	3.360 6.030 6.589 7.413	3.26- 3.46 5.93- 6.13 6.49- 6.69 7.31- 7.51	0.00571 0.01420 0.01995 0.02138
Peak	Aroclo:	r-1242 RT WIN	Cal Factor
1 2 3 4	6.029 6.437 6.586 7.409	5.93- 6.13 6.34- 6.54 6.49- 6.69 7.31- 7.51	0.02842 0.09095 0.03964 0.04179
Peak	Aroclo:	r-1248 RT WIN	Cal Factor
1 2 3 4	6.437 7.412 7.788 8.078	6.34- 6.54 7.31- 7.51 7.69- 7.89 7.98- 8.18	0.05556 0.05697 0.04762 0.04789

FORM VI PCB-2A

page 1 of 2

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03 Project: JFOS SHEET

GC Column: ZB5 Instrument ID: ECD5

Calibration Date: 09/05/14

	Aroclo		
D1-			Cal
Peak	RT	RT WIN	Factor
1	8.158	8.06- 8.26	0.07055
2	8.530	8.43- 8.63	0.04658
l	8.666	8.57- 8.77	0.09387
	9.020	8.92- 9.12	0.09918
	9.700		0.09613
			4
	Aroclo	r-1262	1
			Cal
Peak	RT	RT WIN	Factor
1 1	0.246	10.15-10.35	0.05410
2 1	.0.623	10.52-10.72	0.13060
3 1	1.023	10.92-11.12	0.04489
4 1	1.206	11.11-11.31	0.06011
5 1	1.877	11.78-11.98	0.05582
	Aroclo	r-1268	
			Cal
Peak	RT	RT WIN	Factor
I .	.1.133		0.13651
	1.205		0.13999
1	1.588		0.11859
4 1	2.376	12.28-12.48	0.36134
	 _		

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB35

Instrument ID: ECD5

Calibration Date: 09/05/14

Peak	Aroclo:	r-1221 RT WIN	Cal Factor
1 2 3 4	3.780 5.184 5.433 5.546	3.68- 3.88 5.08- 5.28 5.33- 5.53 5.45- 5.65	0.00893 0.01683 0.00897 0.02821
Peak	Aroclo:	r-1232 RT WIN	Cal Factor
1 2 3 4	3.781 5.547 6.246 6.877	3.68- 3.88 5.45- 5.65 6.15- 6.35 6.78- 6.98	0.00523 0.01954 0.02343 0.04372
Peak	Aroclo:	r-1242 RT WIN	Cal Factor
1 2 3 4	6.245 6.878 7.259 8.308	6.14- 6.34 6.78- 6.98 7.16- 7.36 8.21- 8.41	0.04208 0.08637 0.02288 0.02862
Peak	Aroclo:	r-1248 RT WIN	Cal Factor
1 2 3 4	6.875 7.777 8.308 8.652	6.78- 6.98 7.68- 7.88 8.21- 8.41 8.55- 8.75	0.05212 0.04054 0.04208 0.05353

FORM VI PCB-2A

page 1 of 2

Lab Name: ANALYTICAL RESOURCES INC

Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB35

Instrument ID: ECD5

Calibration Date: 09/05/14

A	roclo	r-1254	
Peak	RT	RT WIN	Cal Factor
2 8 3 9 4 9	.368 .544 .065 .215	8.27- 8.47 8.44- 8.64 8.96- 9.16 9.12- 9.32 9.90-10.10	0.03764 0.04608 0.03440 0.07333 0.04116
A	roclo	 r-1262	Cal
Peak	RT	RT WIN	Factor
2 10 3 11 4 11	.403 .773 .048 .629		0.04640 0.08841 0.18056 0.12030 0.06501
		r-1268	_Cal
Peak	RT	RT WIN	Factor
2 11 3 12	.565 .632 .025 .847	11.47-11.67 11.53-11.73 11.93-12.13 12.75-12.95	0.17656 0.17651 0.13963 0.39228

7F PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB5

Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed:09/23/14

Lab Standard ID: AR1242

Time Analyzed: 1246

		RT WINDOW		CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
	=====	=====	=====	=======	=======	=====
Aroclor-1242-1	6.05	5.93	6.13	253.4	250.0	1.4
Aroclor-1242-2	6.45	6.34	6.54	255.1	250.0	2.0
Aroclor-1242-3	6.60	6.49	6.69	254.0	250.0	1.6
Aroclor-1242-4	7.43	7.31	7.51	259.9	250.0	4.0
	•			•	•	•

AVERAGE %D = 2.2

FORM VII PCB

THER: RRET

Lab Name: ANALYTICAL RESOURCES INC

Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB5

Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed: 09/23/14

Lab Standard ID: AR1660

Time Analyzed :1306

		RT W	INDOW	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
	== =====	=====	=====	======	=======	=====
Aroclor-1016-1	6.03	5.93	6.13	261.5	250.0	4.6
Aroclor-1016-2	6.44	6.34	6.54	255.9	250.0	2.4
Aroclor-1016-3	6.59	6.49	6.69	258.0	250.0	3.2
Aroclor-1016-4	6.70	6.60	6.80	265.6	250.0	6.2

AVERAGE D = 4.1

Date Analyzed: 09/23/14

Lab Standard ID: AR1660

Time Analyzed :1306

		RT W	INDOW	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
=======================================	=====	=====	=====	=======	=======	=====
Aroclor-1260-1	9.93	9.83	10.03	236.4	250.0	-5.4
Aroclor-1260-2	10.25	10.14	10.34	243.9	250.0	-2.4
Aroclor-1260-3	10.62	10.52	10.72	234.3	250.0	-6.3
Aroclor-1260-4	11.02	10.92	11.12	251.9	250.0	0.8
Aroclor-1260-5	11.21	11.10	11.30	239.5	250.0	-4.2

AVERAGE D = 3.8

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Lab Name: ANALYTICAL RESOURCES INC

Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB5

Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed: 09/23/14

Lab Standard ID: AR1254 Time Analyzed :1626

		RT W	MOOM	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
=======================================	=====	=====	=====	======	======	=====
Aroclor-1254-1	8.16	8.06	8.26	236.2	250.0	-5.5
Aroclor-1254-2	8.53	8.43	8.63	243.4	250.0	-2.6
Aroclor-1254-3	8.67	8.57	8.77	246.5	250.0	-1.4
Aroclor-1254-4	9.02	8.92	9.12	246.5	250.0	-1.4
Aroclor-1254-5	9.70	9.60	9.80	244.4	250.0	-2.2

AVERAGE %D = 2.6

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Lab Name: ANALYTICAL RESOURCES INC

Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB5

Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed: 09/23/14

Lab Standard ID: AR1660

Time Analyzed: 1646

		RT W	INDOM	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
=======================================	== =====	=====	=====	======	=======	=====
Aroclor-1016-1	6.03	5.93	6.13	256.7	250.0	2.7
Aroclor-1016-2	6.44	6.34	6.54	258.5	250.0	3.4
Aroclor-1016-3	6.59	6.49	6.69	256.3	250.0	2.5
Aroclor-1016-4	6.70	6.60	6.80	264.3	250.0	5.7

AVERAGE D = 3.6

Date Analyzed: 09/23/14

Lab Standard ID: AR1660

Time Analyzed :1646

		RT W	INDOW	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	то	AMOUNT (ng)	AMOUNT (ng)	%D
	: =====	=====	=====	======	=======	====
Aroclor-1260-1	9.93	9.83	10.03	238.7	250.0	-4.5
Aroclor-1260-2	10.24	10.14	10.34	245.5	250.0	-1.8
Aroclor-1260-3	10.62	10.52	10.72	239.1	250.0	-4.4
Aroclor-1260-4	11.02	10.92	11.12	256.8	250.0	2.7
Aroclor-1260-5	11.20	11.10	11.30	234.3	250.0	-6.3

AVERAGE D = 3.9

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Lab Name: ANALYTICAL RESOURCES INC

Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB5

Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed: 09/23/14

Lab Standard ID: AR1248

Time Analyzed :2009

		RT W	INDOW	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
=======================================	=====	=====	=====	======	======	=====
Aroclor-1248-1	6.43	6.34	6.54	251.0	250.0	0.4
Aroclor-1248-2	7.41	7.31	7.51	247.4	250.0	-1.0
Aroclor-1248-3	7.79	7.69	7.89	248.7	250.0	-0.5
Aroclor-1248-4	8.08	7.98	8.18	256.2	250.0	2.5
	•	•	•		•	•

AVERAGE %D = 1.1

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB5

Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed: 09/23/14

Lab Standard ID: AR1660

Time Analyzed :2029

		RT W	INDOW	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	ТО	AMOUNT (ng)	AMOUNT (ng)	%D
=======================================	======	=====	=====	=======	=======	=====
Aroclor-1016-1	6.03	5.93	6.13	258.7	250.0	3.5
Aroclor-1016-2	6.44	6.34	6.54	258.8	250.0	3.5
Aroclor-1016-3	6.59	6.49	6.69	257.9	250.0	3.2
Aroclor-1016-4	6.70	6.60	6.80	265.3	250.0	6.1

AVERAGE D = 4.1

Date Analyzed: 09/23/14

Lab Standard ID: AR1660

Time Analyzed :2029

		RT W	INDOW	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT	AMOUNT	%D
				(ng)	(ng)	
=======================================	=====	=====	=====	=======	=======	=====
Aroclor-1260-1	9.93	9.83	10.03	252.4	250.0	1.0
Aroclor-1260-2	10.24	10.14	10.34	258.5	250.0	3.4
Aroclor-1260-3	10.62	10.52	10.72	249.2	250.0	-0.3
Aroclor-1260-4	11.02	10.92	11.12	269.7	250.0	7.9
Aroclor-1260-5	11.20	11.10	11.30	246.9	250.0	-1.2
	•	•	•	•		•

AVERAGE D = 2.8

indu: Beezs

BEDDD: 5067

Lab Name: ANALYTICAL RESOURCES INC

Client: JOGENSEN FORGE

_ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB5

Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed: 09/23/14

Lab Standard ID: AR1242

Time Analyzed :2353

		RT W	INDOW	CALC	MOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
=======================================	=====	=====	=====	=======	======	=====
Aroclor-1242-1	6.03	5.93	6.13	249.1	250.0	-0.4
Aroclor-1242-2	6.44	6.34	6.54	252.4	250.0	1.0
Aroclor-1242-3	6.59	6.49	6.69	249.8	250.0	-0.1
Aroclor-1242-4	7.41	7.31	7.51	246.3	250.0	-1.5
	•	•	•	•	•	•

AVERAGE D = 0.8

Lab Name: ANALYTICAL RESOURCES INC

Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB5

Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed :09/24/14

Lab Standard ID: AR1660

Time Analyzed :0014

		RT W	INDOW	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
=======================================	== =====	=====	======	======	=======	=====
Aroclor-1016-1	6.03	5.93	6.13	259.4	250.0	3.8
Aroclor-1016-2	6.44	6.34	6.54	259.2	250.0	3.7
Aroclor-1016-3	6.59	6.49	6.69	256.0	250.0	2.4
Aroclor-1016-4	6.70	6.60	6.80	266.4	250.0	6.5

AVERAGE %D = 4.1

Date Analyzed: 09/24/14

Lab Standard ID: AR1660

Time Analyzed:0014

COMPOUND/PEAK NO.	RT	RT WI FROM	INDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
	=====	=====	=====	======	=======	=====
Aroclor-1260-1	9.93	9.83	10.03	248.9	250.0	-0.4
Aroclor-1260-2	10.24	10.14	10.34	255.6	250.0	2.2
Aroclor-1260-3	10.62	10.52	10.72	246.8	250.0	-1.3
Aroclor-1260-4	11.02	10.92	11.12	268.1	250.0	7.2
Aroclor-1260-5	11.20	11.10	11.30	244.7	250.0	-2.1
	•	,	•	ı	ı	'

AVERAGE %D = 2.6

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Lab Name: ANALYTICAL RESOURCES INC

Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB35

Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed: 09/23/14

Lab Standard ID: AR1242

Time Analyzed :1246

		RT W	INDOW	CALC	NOM	· · · · · · · · · · · · · · · · · · ·
COMPOUND/PEAK NO.	RT	FROM	ТО	AMOUNT (ng)	AMOUNT (ng)	%D
=======================================	= =====	=====	=====	=======	=======	=====
Aroclor-1242-1	6.24	6.14	6.34	249.8	250.0	-0.1
Aroclor-1242-2	_ 6.87	6.78	6.98	234.6	250.0	-6.1
Aroclor-1242-3	7.26	7.16	7.36	255.6	250.0	2.2
Aroclor-1242-4	_ 8.31	8.21	8.41	253.3	250.0	1.3

AVERAGE %D = 2.4

Lab Name: ANALYTICAL RESOURCES INC

Client: JOGENSEN FORGE

_ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB35

Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed: 09/23/14

Lab Standard ID: AR1660

Time Analyzed :1306

		RT WINDOW		CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
	= ======	=====	=====	=======	=======	=====
Aroclor-1016-1	6.24	6.15	6.35	259.0	250.0	3.6
Aroclor-1016-2	6.88	6.78	6.98	228.1	250.0	-8.7
Aroclor-1016-3	7.26	7.16	7.36	270.0	250.0	8.0
Aroclor-1016-4	_ _{7.37}	7.27	7.47	262.5	250.0	5.0

AVERAGE D = 6.3

Date Analyzed:09/23/14

Lab Standard ID: AR1660

Time Analyzed: 1306

COMPOUND/PEAK NO.	RT	RT WI FROM	INDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
	=====	=====	======	=======	======	=====
Aroclor-1260-1	10.32	10.22	10.42	241.0	250.0	-3.6
Aroclor-1260-2	10.77	10.67	10.87	248.5	250.0	-0.6
Aroclor-1260-3	11.05	10.94	11.14	256.3	250.0	2.5
Aroclor-1260-4	11.62	11.52	11.72	250.5	250.0	0.2
	'	'	'	,	'	

AVERAGE D = 1.7

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Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB35

Intrument: ECD5

Init. Calib. Date: 09/05/14

Lab Standard ID: AR1254

Date Analyzed: 09/23/14

Time Analyzed :1626

		RT WINDOW		CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
=======================================	=====	=====	=====	=======	=======	=====
Aroclor-1254-1	8.37	8.27	8.47	248.4	250.0	-0.6
Aroclor-1254-2	8.54	8.44	8.64	240.9	250.0	-3.6
Aroclor-1254-3	9.06	8.96	9.16	244.1	250.0	-2.4
Aroclor-1254-4	9.21	9.12	9.32	227.2	250.0	-9.1
Aroclor-1254-5	10.00	9.90	10.10	235.8	250.0	-5.7

AVERAGE D = 4.3

Zhës: eese

Lab Name: ANALYTICAL RESOURCES INC

Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB35

Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed:09/23/14

Lab Standard ID: AR1660

Time Analyzed: 1646

	RT WINDOW		CALC	NOM	
RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
======	=====	=====	=======	======	=====
6.24	6.15	6.35	259.7	250.0	3.9
6.88	6.78	6.98	228.3	250.0	-8.7
7.26	7.16	7.36	270.7	250.0	8.3
7.37	7.27	7.47	261.2	250.0	4.5
	6.24 6.88 7.26	RT FROM ====== 6.24 6.15 6.88 6.78 7.26 7.16	RT FROM TO 6.24 6.15 6.35 6.88 6.78 6.98 7.26 7.16 7.36	RT FROM TO AMOUNT (ng)	RT FROM TO AMOUNT (ng) (ng) ====== 6.24 6.15 6.35 259.7 250.0 6.88 6.78 6.98 228.3 250.0 7.26 7.16 7.36 270.7 250.0

AVERAGE %D = 6.3

Date Analyzed: 09/23/14

Lab Standard ID: AR1660

Time Analyzed :1646

		RT WINDOW		CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
	== =====	=====	=====	======	=======	====
Aroclor-1260-1	10.32	10.22	10.42	259.1	250.0	3.6
Aroclor-1260-2	<u> </u>	10.67	10.87	265.2	250.0	6.1
Aroclor-1260-3	11.04	10.94	11.14	258.3	250.0	3.3
Aroclor-1260-4	11.62	11.52	11.72	255.3	250.0	2.1

AVERAGE D = 3.8

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Lab Name: ANALYTICAL RESOURCES INC

Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB35

Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed: 09/23/14

Lab Standard ID: AR1248

Time Analyzed :2009

		RT WINDOW		CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	ТО	AMOUNT (ng)	AMOUNT (ng)	%D
=======================================	= =====	=====	=====	=======	======	=====
Aroclor-1248-1	6.87	6.78	6.98	236.8	250.0	-5.3
Aroclor-1248-2	7.78	7.68	7.88	244.0	250.0	-2.4
Aroclor-1248-3	8.31	8.21	8.41	243.1	250.0	-2.7
Aroclor-1248-4	8.65	8.55	8.75	245.5	250.0	-1.8
	_ •	•	•	•	•	•

AVERAGE D = 3.0

FORM VII PCB

TURE: ARRAT

Lab Name: ANALYTICAL RESOURCES INC

Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB35

Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed:09/23/14

Lab Standard ID: AR1660

Time Analyzed: 2029

		RT WINDOW		CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
=======================================	=== =====	=====	=====	======	======	=====
Aroclor-1016-1	6.24	6.15	6.35	259.1	250.0	3.6
Aroclor-1016-2	6.88	6.78	6.98	226.0	250.0	-9.6
Aroclor-1016-3	7.26	7.16	7.36	270.9	250.0	8.4
Aroclor-1016-4	7.37	7.27	7.47	260.8	250.0	4.3

AVERAGE D = 6.5

Date Analyzed: 09/23/14

Lab Standard ID: AR1660

Time Analyzed: 2029

COMPOUND/PEAK NO.	RT	RT W	INDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
	= =====================================	=====	=====	=======	=======	=====
Aroclor-1260-1	10.32	10.22	10.42	265.4	250.0	6.2
Aroclor-1260-2	10.77	10.67	10.87	270.6	250.0	8.2
Aroclor-1260-3	11.04	10.94	11.14	262.0	250.0	4.8
Aroclor-1260-4	11.62	11.52	11.72	258.7	250.0	3.5
	- '	•	•	'	•	•

AVERAGE D = 5.7

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Lab Name: ANALYTICAL RESOURCES INC

Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB35

Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed: 09/23/14

Lab Standard ID: AR1242

Time Analyzed :2353

		RT WINDOW		CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	ТО	AMOUNT (ng)	AMOUNT (ng)	%D
=======================================	:	=====	=====	=======	=======	=====
Aroclor-1242-1	6.24	6.14	6.34	248.4	250.0	-0.6
Aroclor-1242-2	6.88	6.78	6.98	228.2	250.0	-8.7
Aroclor-1242-3	7.26	7.16	7.36	251.9	250.0	0.8
Aroclor-1242-4	8.31	8.21	8.41	246.8	250.0	-1.3

AVERAGE D = 2.8

Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB35

Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed: 09/24/14

Lab Standard ID: AR1660 Time Analyzed: 0014

		RT WINDOW		CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	% D
=======================================	=====	======	=====	======	======	=====
Aroclor-1016-1	6.24	6.15	6.35	259.5	250.0	3.8
Aroclor-1016-2	6.88	6.78	6.98	225.3	250.0	-9.9
Aroclor-1016-3	7.26	7.16	7.36	270.1	250.0	8.0
Aroclor-1016-4	7.37	7.27	7.47	260.3	250.0	4.1
	•	•	'		'	•

AVERAGE D = 6.4

Date Analyzed: 09/24/14

Time Analyzed: 0014 Lab Standard ID: AR1660

		RT WINDOW		CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	% D
	======	=====	=====	======	======	=====
Aroclor-1260-1	10.32	10.22	10.42	258.5	250.0	3.4
Aroclor-1260-2	10.77	10.67	10.87	267.1	250.0	6.8
Aroclor-1260-3	11.04	10.94	11.14	259.1	250.0	3.6
Aroclor-1260-4	11.62	11.52	11.72	257.5	250.0	3.0

AVERAGE D = 4.2

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Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB5

Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed: 09/24/14

Lab Standard ID: AR1254 Time Analyzed :0654

		RT WINDOW		CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
	=====	=====	======	======	=======	=====
Aroclor-1254-1	8.16	8.06	8.26	243.1	250.0	-2.7
Aroclor-1254-2	8.53	8.43	8.63	257.8	250.0	3.1
Aroclor-1254-3	8.67	8.57	8.77	258.4	250.0	3.4
Aroclor-1254-4	9.02	8.92	9.12	261.0	250.0	4.4
Aroclor-1254-5	9.70	9.60	9.80	257.3	250.0	2.9

AVERAGE D = 3.3

ZAUS : EUSS : :

Lab Name: ANALYTICAL RESOURCES INC

Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB5

Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed: 09/24/14

Lab Standard ID: AR1660

Time Analyzed: 0714

COMPOUND/PEAK NO.	RT	RT WI FROM	TO TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
	=====	=====	=====	======	======	====
Aroclor-1016-1	6.03	5.93	6.13	262.1	250.0	4.8
Aroclor-1016-2	6.44	6.34	6.54	261.7	250.0	4.7
Aroclor-1016-3	6.59	6.49	6.69	259.2	250.0	3.7
Aroclor-1016-4	6.70	6.60	6.80	272.2	250.0	8.9
		•		'	'	

AVERAGE D = 5.5

Date Analyzed: 09/24/14

Lab Standard ID: AR1660

Time Analyzed: 0714

		RT W	MDOW	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
	=====	=====	======	======	=======	=====
Aroclor-1260-1	9.93	9.83	10.03	248.6	250.0	-0.5
Aroclor-1260-2	10.24	10.14	10.34	257.2	250.0	2.9
Aroclor-1260-3	10.62	10.52	10.72	247.7	250.0	-0.9
Aroclor-1260-4	11.01	10.92	11.12	270.4	250.0	8.2
Aroclor-1260-5	11.20	11.10	11.30	250.8	250.0	0.3
		,	,	,		

AVERAGE D = 2.6

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Lab Name: ANALYTICAL RESOURCES INC Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB5

Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed: 09/24/14

Lab Standard ID: AR1248

Time Analyzed :0930

TO	AMOUNT (ng)	AMOUNT (ng)	%D
=====	======	=======	=====
6.54،	257.4	250.0	3.0
7.51	260.3	250.0	4.1
7.89	269.6	250.0	7.8
8.18	280.3	250.0	12.1

AVERAGE D = 6.8

FORM VII PCB

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Lab Name: ANALYTICAL RESOURCES INC

Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB5

Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed: 09/24/14

Lab Standard ID: AR1660 Time Analyzed: 0950

COMPOUND/PEAK NO.	RT	RT WI FROM	INDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
=======================================	======	=====	=====	======	======	=====
Aroclor-1016-1	6.03	5.93	6.13	262.4	250.0	5.0
Aroclor-1016-2	6.44	6.34	6.54	260.8	250.0	4.3
Aroclor-1016-3	6.59	6.49	6.69	258.4	250.0	3.4
Aroclor-1016-4	6.70	6.60	6.80	269.9	250.0	8.0

AVERAGE D = 5.2

Date Analyzed: 09/24/14

Lab Standard ID: AR1660 Time Analyzed: 0950

1	RT W	INDOW	CALC	NOM	
RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
=====	=====	=====	======	=======	=====
9.93	9.83	10.03	245.5	250.0	-1.8
10.24	10.14	10.34	253.0	250.0	1.2
10.62	10.52	10.72	243.5	250.0	-2.6
11.02	10.92	11.12	266.4	250.0	6.6
11.20	11.10	11.30	248.7	250.0	-0.5
	9.93 10.24 10.62 11.02	RT FROM 9.93 9.83 10.24 10.14 10.62 10.52 11.02 10.92	9.93 9.83 10.03 10.24 10.14 10.34 10.62 10.52 10.72 11.02 10.92 11.12	RT FROM TO AMOUNT (ng) 9.93 9.83 10.03 245.5 10.24 10.14 10.34 253.0 10.62 10.52 10.72 243.5 11.02 10.92 11.12 266.4	RT FROM TO AMOUNT (ng) (ng) 9.93 9.83 10.03 245.5 250.0 10.24 10.14 10.34 253.0 250.0 10.62 10.52 10.72 243.5 250.0 11.02 10.92 11.12 266.4 250.0

AVERAGE %D = 2.5

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Lab Name: ANALYTICAL RESOURCES INC

Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB35

Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed: 09/24/14

Lab Standard ID: AR1254 Time Analyzed: 0654

	RT W	NDOW	CALC	NOM	
RT	FROM	ТО	AMOUNT (ng)	AMOUNT (ng)	%D
=====	=====	=====	======	========	=====
8.37	8.27	8.47	261.8	250.0	4.7
8.54	8.44	8.64	258.8	250.0	3.5
9.06	8.96	9.16	263.9	250.0	5.5
9.21	9.12	9.32	237.0	⊿30.0	-5.2
10.00	9.90	10.10	262.7	250.0	5.1
	8.37 8.54 9.06 9.21	RT FROM 8.37 8.27 8.54 8.44 9.06 8.96 9.21 9.12	RT FROM TO ===== ==== ========================	RT FROM TO AMOUNT (ng) ====== 8.37 8.27 8.47 261.8 8.54 8.44 8.64 258.8 9.06 8.96 9.16 263.9 9.21 9.12 9.32 237.0	RT FROM TO AMOUNT (ng) (ng) ====== 8.37 8.27 8.47 261.8 250.0 8.54 8.44 8.64 258.8 250.0 9.06 8.96 9.16 263.9 250.0 9.21 9.12 9.32 237.0 250.0

AVERAGE D = 4.8

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Lab Name: ANALYTICAL RESOURCES INC

Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB35

Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed: 09/24/14

Lab Standard ID: AR1660 Time Analyzed: 0714

	RT W	INDOW	CALC	NOM	
RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
= =====	=====	=====	=======	=======	====
6.24	6.15	6.35	256.4	250.0	2.6
6.88	6.78	6.98	222.6	250.0	-11.0
7.26	7.16	7.36	270.3	250.0	8.1
7.37	7.27	7.47	260.5	250.0	4.2
	6.24 6.88 7.26	RT FROM ===================================	RT FROM TO = ===== 6.24 6.15 6.35 6.88 6.78 6.98 7.26 7.16 7.36	RT FROM TO AMOUNT (ng) = ===== 6.24 6.15 6.35 .256.4 6.88 6.78 6.98 222.6 7.26 7.16 7.36 270.3	RT FROM TO AMOUNT (ng) ====================================

AVERAGE D = 6.5

Date Analyzed: 09/24/14

Lab Standard ID: AR1660

Time Analyzed: 0714

		RT WINDOW		CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
=======================================	:= =====	======	=====	======	=======	=====
Aroclor-1260-1	10.32	10.22	10.42	249.6	250.0	-0.1
Aroclor-1260-2	10.77	10.67	10.87	260.2	250.0	4.1
Aroclor-1260-3	11.04	10.94	11.14	253.8	250.0	1.5
Aroclor-1260-4	_ _{11.62}	11.52	11.72	253.7	250.0	1.5

AVERAGE D = 1.8

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7F PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB35

Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed: 09/24/14

Lab Standard ID: AR1248

Time Analyzed:0930

1	RT W	INDOW	CALC	NOM	
RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
= ======	=====	=====	=======	======	====
6.87	6.78	6.98	233.0	250.0	-6.8
7.77	7.68	7.88	253.9	250.0	1.6
8.31	8.21	8.41	257.9	250.0	3.2
8.65	8.55	8.75	261.1	250.0	4.4
	6.87 7.77 8.31	RT FROM ===================================	RT FROM TO = ===== 6.87 6.78 6.98 7.77 7.68 7.88 8.31 8.21 8.41	RT FROM TO AMOUNT (ng) = ===== 6.87 6.78 6.98 233.0 7.77 7.68 7.88 253.9 8.31 8.21 8.41 257.9	RT FROM TO AMOUNT (ng) (ng) (ng) (ng) (ng) (ng) (ng) (ng)

AVERAGE D = 4.0

7F PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB35

Intrument: ECD5

Init. Calib. Date: 09/05/14

Date Analyzed:09/24/14

Lab Standard ID: AR1660

Time Analyzed:0950

		RT W	NDOW	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT	AMOUNT	%D
				(ng)	(ng)	
***====================================	======	=====	=====	=======	======	=====
Aroclor-1016-1	6.24	6.15	6.35	254.3	250.0	1.7
Aroclor-1016-2	6.88	6.78	6.98	220.5	250.0	-11.8
Aroclor-1016-3	7.26	7.16	7.36	268.5	250.0	7.4
Aroclor-1016-4	7.37	7.27	7.47	258.1	250.0	3.2
	•	•		•	•	•

AVERAGE D = 6.0

Date Analyzed: 09/24/14

Lab Standard ID: AR1660

Time Analyzed :0950

		RT W	INDOW	CALC	MOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
=======================================	=====	=====	=====	======	======	=====
Aroclor-1260-1	10.32	10.22	10.42	246.0	250.0	-1.6
Aroclor-1260-2	10.77	10.67	10.87	256.2	250.0	2.5
Aroclor-1260-3	11.04	10.94	11.14	249.5	250.0	-0.2
Aroclor-1260-4	11.62	11.52	11.72	252.8	250.0	1.1
	•			•	'	

AVERAGE D = 1.4

FORM VII PCB

FORM 8 PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB5 ID: 0.53 (mm)

Instrument ID: ECD5

Init. Calib. Date: 09/05/14

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

							IS2	
					AREA	RT	AREA	RT
			======			======	#======	
			!	MIDPT	68336604	2.232	106364042	
				LIMIT	136673208	2.332	212728084	13.246
			LOWER	LIMIT	34168302	2.132	53182021	13.046
				<u> </u>				
ļ	CLIENT	LAB	DATE		IS1		IS2	
ļ	SAMPLE NO.	SAMPLE ID	ANALYZED	TIME	AREA	RT	AREA	RT
ا م			00/05/14				=======	112 148
	ZZZZZ	ZZZZZ	09/05/14	1719	66968707	2.234	106386762	13.147
02		0.25PPMAR166	, ,	1739	68336604		106364042	13.146
03		0.02PPMAR166		1759	71298607	2.233	109521759	13.147
04		0.05PPMAR166		1819	68896112	2.232	107072369	13.147
05		1PPMAR1660	09/05/14	1840	63047420	2.234	•	13.146
06		0.1PPMAR1660	09/05/14	1900	71157892		110619087	13.147
07		0.5PPMAR1660		1920	69395213		109684434	13.146
08		AR1242	09/05/14	1941	63503858	2.234	102504510	13.148
09		AR1248	09/05/14	2001	67079622	•	107128851	13.148
10		AR1254	09/05/14	2021	67244466	2.234	107315197	13.148
11		AR2162	09/05/14	2042	65778557	2.235	104677392	13.148
12		AR3268	09/05/14	2102	68340586		105047729	13.148
	ZZZZZ	ZZZZZ	09/05/14	2122	68199300	2.235	107345555	13.149
	ZZZZZ	ZZZZZ	09/05/14	2142	65164230	2.235	105169847	13.149
	ZZZZZ	ZZZZZ	09/05/14	2202	66791388	2.235	106490697	13.150
	ZZZZZ	ZZZZZ	09/05/14	2223	68094644	2.236	108548317	13.150
	ZZZZZ	ZZZZZ	09/05/14	2243	67384552	2.235	106975185	13.150
	ZZZZZ	ZZZZZ	09/05/14	2303	66686755	2.235	107257203	13.149
19		AR1242	09/23/14	1246	69733732	2.243	119634322	13.157
20		AR1660	09/23/14	1306	71757601	2.235	118004784	13.148
	ZA03MBS1	ZA03MBS1	09/23/14	1326	70855185	2.231	123599535	13.136
	ZA03LCSS1	ZA03LCSS1	09/23/14	1346	72037997		118292317	13.136
23	ZA03LCSDS1	ZA03LCSDS1	09/23/14	1406	74902211		121353431	13.136
24		AR1254	09/23/14	1626	75561069	2.229	121276940	13.142
25		AR1660	09/23/14	1646	71913919	2.232	112800197	13.142
26		AR1248	09/23/14	2009	75068743	2.231	112136936	13.143
27		AR1660	09/23/14	2029	74335495	2.231	110268394	13.141
28	SSP-SOLIDS-2	ZA03A	09/23/14	2151	71591056	2.231	120883320	13.132
29		AR1242	09/23/14	2353	75079466	2.232	120026433	13.142
30	!	AR1660	09/24/14	0014	75469511	2.232	115871460	13.141
31		AR1254	09/24/14	0654	80808108	2.232	129972592	13.141
32		AR1660	09/24/14	0714	77209306	2.231	123730015	13.139

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min

LAGU: BUSE:

IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

page 1 of 2

FORM VIII PCB

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FORM 8 PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

_GC Column: ZB5

ID: 0.53 (mm)

Instrument ID: ECD5

Init. Calib. Date: 09/05/14

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

					IS1		IS2	
			i		AREA	RT	AREA	RT
			======	=====	=======	======		======
			ICAL	MIDPT	68336604	2.232	106364042	13.146
			UPPER	LIMIT	136673208	2.332	212728084	13.246
			LOWER	LIMIT	34168302	2.132	53182021	13.046
			j		į į			
	CLIENT	LAB	DATE		IS1		IS2	
j	SAMPLE NO.	SAMPLE ID	ANALYZED	TIME	AREA	RT	AREA	RT
	========					======	=======	======
33	SSP-SOLIDS-2	ZA03A	09/24/14	0855	75370994	2.230	136242995	13.134
34		AR1248	09/24/14	0930	79458479	2.237	136160501	13.145
35		AR1660	09/24/14	0950	77626902	2.232	127285314	13.140
		į		İ	i	İ	İ	l [*]

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min

IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

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FORM VIII PCB

LAUS: EUUL

FORM 8 PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB35 ID: 0.53 (mm)

Instrument ID: ECD5

Init. Calib. Date: 09/05/14

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

							IS2	
					AREA	RT	AREA	RT
						======		======
			ICAL	MIDPT	23298669	2.807	16910731	14.126
			UPPER	LIMIT	46597338	2.907	33821462	14.226
			LOWER	LIMIT	11649334	2.707	8455366	14.026
								ll
	CLIENT	LAB	DATE	DATE			IS2	
	SAMPLE NO.	SAMPLE ID	ANALYZED	TIME	AREA	RT	AREA	RT
		=======================================		=====		======	=======	
	ZZZZZ	ZZZZZ	09/05/14	1719	22870418	2.807	16780827	14.125
02		0.25PPMAR166	09/05/14	1739	23298669	2.807	16910731	14.126
03		0.02PPMAR166	09/05/14	1759	24102664	2.806	17533630	14.127
04		0.05PPMAR166	09/05/14	1819	23739112	2.806	17134507	14.127
05		1PPMAR1660	09/05/14	1840	22003780	2.806	16275263	14.126
06		0.1PPMAR1660	09/05/14	1900	24315657	2.806	17710454	14.127
07		0.5PPMAR1660		1920	23976757		17588689	14.127
08		AR1242	09/05/14	1941	22146455		16457379	14.127
09		AR1248	09/05/14	2001	23420943	2.807	17303257	14.128
10		AR1254	09/05/14	2021	23460395	2.807	17424705	14.128
11		AR2162	09/05/14	2042	22873448	2.807	16845329	14.127
12		AR3268	09/05/14	2102	23636735	2.807	17491564	14.128
	ZZZZZ	ZZZZZ	09/05/14	2122	23692769	2.809	17513904	14.127
	ZZZZZ	ZZZZZ	09/05/14	2142	23185763	2.807	16896047	14.128
	ZZZZZ	ZZZZZ	09/05/14	2202	23209426	2.807	17104199	14.129
	ZZZZZ	ZZZZZ	09/05/14	2223	23652946	2.808	17514371	14.129
	ZZZZZ	ZZZZZ	09/05/14	2243	23184128		17369539	14.127
	ZZZZZ	ZZZZZ	09/05/14	2303	22960795		17355053	14.128
19		AR1242	09/23/14	1246	25150294		19390170	14.128
20		AR1660	09/23/14	1306	25097012	2.807	19053079	14.127
	ZA03MBS1	ZA03MBS1	09/23/14	1326	23986850	2.806	20007504	14.122
	ZA03LCSS1	ZA03LCSS1	09/23/14	1346	24673620	2.805	20163785	14.122
23	ZA03LCSDS1	ZA03LCSDS1	09/23/14	1406	25022589	2.806	20295297	14.122
24		AR1254	09/23/14	1626	25960136	2.804	16511629	14.125
25		AR1660	09/23/14	1646	24784438	2.805	16879673	14.125
26		AR1248	09/23/14	2009	25502456	2.804	15914656	14.124
27		AR1660	09/23/14	2029	25177538	2.805	16458383	14.124
	SSP-SOLIDS-2		09/23/14	2151	23718820		17635359	14.119
29		AR1242	09/23/14	2353	25943676	2.805	17005905	14.123
30		AR1660	09/24/14	0014	25522386		17380740	14.124
31		AR1254	09/24/14	0654	27154162	2.805	19861458	14.124
32		AR1660	09/24/14	0714	26146769	2.803	18866553	14.123
		. <u></u>						

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min

ZAES: EEEbu

IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

page 1 of 2

FORM VIII PCB

TURE: RERPE

FORM 8 PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: JOGENSEN FORGE

ARI Job No.: ZA03

Project: JFOS SHEET

GC Column: ZB35

ID: 0.53 (mm)

Instrument ID: ECD5

Init. Calib. Date: 09/05/14

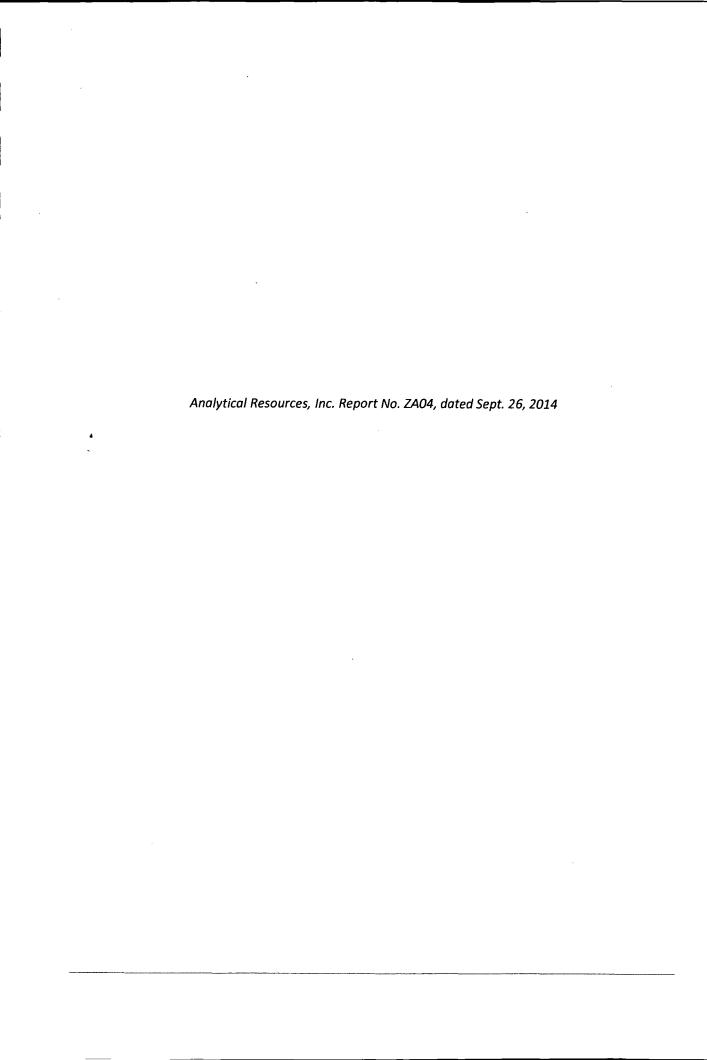
THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

					IS1		IS2	
					AREA	RT	AREA	RT
			=====:	======	=======	======		======
			ICAL	ICAL MIDPT		2.807	16910731	14.126
			UPPER	UPPER LIMIT		2.907	33821462	14.226
			LOWER	LIMIT	11649334	2.707	8455366	14.026
			j		İ	İ	ĺ	j
	CLIENT	LAB	DATE	1	IS1		IS2	
Ì	SAMPLE NO.	SAMPLE ID	ANALYZED	TIME	AREA	RT	AREA	RT
	=========			=====				
33	SSP-SOLIDS-2	ZA03A	09/24/14	0855	23972994	2.805	19504901	14.121
34		AR1248	09/24/14	0930	27676170	2.801	20348810	14.125
35		AR1660	09/24/14	0950	26580967	2.806	19550217	14.125
,		·	I ————————————————————————————————————	·——	I			· ———

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min

IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits





25 September 2014

Miles Dyer Jorgensen Forge Corporation 8531 East Marginal Way South Seattle, WA 98108

RE: JFOS Sheet Pile ARI Job No.: ZA04

Dear Miles:

Please find enclosed the original Chain-of-Custody (COC) record, sample receipt documentation, and the final data for the sample from the project referenced above. Analytical Resources, Inc. (ARI) accepted one wipe sample on September 12, 2014. For further details regarding sample receipt please refer to the enclosed Cooler Receipt Form. The sample was analyzed for PCBs as requested.

There were no anomalies associated with the analysis of this sample.

An electronic copy of this report and all supporting raw data will remain on file with ARI. Should you have any questions regarding these results, please feel free to contact me at your convenience.

Respectfully,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com
www.arilabs.com

cc: Dee Gardner, Sound Earth, Inc. eFile ZA04

Enclosures

AF	Hain of Custody Reco	Turn-around	Requested:	ilalysis i	request	Page:]	of	1				Analytic	cal Resources, Incorporated cal Chemists and Consultant outh 134th Place, Suite 100
١,	R Client Company: ORGENSEN FORGE		Phone: 204.762.1100		Date: 09.12	2014	Ice Pres	ent?		7	Tukwila, WA 98168 206-695-6200 206-0			
	lient Contact:					No. of Coolers:		Cook Temp	ps: 1ご					rilabs.com
CI	ient Project Name: JFOS SHEET PII	E					1		Analysis T	Requested				Notes/Comments
CI	lient Project #:		DUG 1			₹ 882							I	
	Sample ID	Date	Time	Matrix	No Containers	PCBS BY EPA 6082								
25	SP- C-20140912	09.12.14	1455	WIPE		\times								
														_
		-												
	onments/Special Instructions (C:DE GARD NEL M	Relinquished by (Signature)	nL		Received by (Signature)				Relinquisher (Signature)	by			Received by (Signature)	

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or cosigned agreement between ARI and the Client.

Date & Time

9.12.2040 1540

Printed Name

Company:

Date & Time

Printed Name:

Company.

Date & Time:

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retertion schedules have been established by work-order or contract.



Cooler Receipt Form

ARI Client ONGEN	Sen Forge	Project Name. UFOS	meet (rile	
COC No(s).		Delivered by: Fed-Ex UPS Cour	ier (Hand Deli	vered Other	·;
Assigned ARI Job No:	17A04	Tracking No.			NA
Preliminary Examination Phase:		<u> </u>			
Were intact, properly signed and	dated custody seals attached to	the outside of to cooler?		YES	(No
Were custody papers included wi	th the cooler?	·············	(Yes	NO
Were custody papers properly fille	ed out (ink, signed, etc.)		(YES	NO
Temperature of Cooler(s) (°C) (re	commended 2.0-6.0 °C for che	mistry) 15.1			
If cooler temperature is out of cor	npliance fill out form 00070F		Temp Gun IE	#: <i>908</i>	77952
Cooler Accepted by	AV.		1540)	_
	Complete custody forms	and attach all shipping documents			
Log-In Phase:					**
Was a temperature blank include	d in the cooler?			YES	(NO)
What kind of packing material v		o Wet log Gel Packs Baggies Foam	Block Paper	Other:	
Was sufficient ice used (if approp	riate)?		(NA)	YES	(NOA/
Were all bottles sealed in individu	al plastic bags?			YES	NO
Did all bottles arrive in good cond	lition (unbroken)?	·		(YES)	NO
Were all bottle labels complete ar	nd legible?			YES	NO
Did the number of containers liste	ed on COC match with the numb	ber of containers received?		₹E\$	NO
Did all bottle labels and tags agre	e with custody papers?			(YES)	NO
Were all bottles used correct for t	he requested analyses?			YES	NO
Do any of the analyses (bottles) r	equire preservation? (attach pre	eservation sheet, excluding VOCs)	(NA	YES	NO
Were all VOC vials free of air bub	bles?		(NA)	YES	NO
Was sufficient amount of sample	sent in each bottle?			PES	NO
Date VOC Trip Blank was made a	at ARI	· ····	NA		
Was Sample Split by ARI:	YES Date/Time:	Equipment:		Split by:_	
Samples Logged by:	Date	, 9/12/14 Time:	1650)	
oampioo zoggod by.		er of discrepancies or concerns **			
					
Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sam	ple ID on C	OC
Additional Material Plantage and	a A Danah diana				
Additional Notes, Discrepancie	s, & Resolutions:				
By: Da	te:				
Small Air Bubbles Peabubb		Small → "sm" (<2 mm)			
- 2mm 2-4 mm		Peabubbles → "pb" (2 to < 4 mm)		······································	
• • • •	• • • • •	Large → "lg" (4 to < 6 mm)	·		
	l l	Headspace → "hs" (>6 mm)			

Sample ID Cross Reference Report



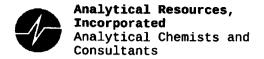
ARI Job No: ZA04 Client: Jorgensen Forge Project Event: N/A

Project Name: JFOS Sheet Pile

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	SSP-C-20140912	ZA04A	14-18684	Wipe	09/12/14 14:55	09/12/14 15:40

Printed 09/12/14 Page 1 of 1

LABU: BUBBH



Data Reporting Qualifiers Effective 12/31/13

Inorganic Data

- U Indicates that the target analyte was not detected at the reported concentration
- * Duplicate RPD is not within established control limits
- B Reported value is less than the CRDL but ≥ the Reporting Limit
- N Matrix Spike recovery not within established control limits
- NA Not Applicable, analyte not spiked
- H The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
- L Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

- U Indicates that the target analyte was not detected at the reported concentration
- * Flagged value is not within established control limits
- B Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
- J Estimated concentration when the value is less than ARI's established reporting limits
- D The spiked compound was not detected due to sample extract dilution
- E Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Laboratory Quality Assurance Plan

Page 1 of 3

Version 14-003 12/31/13

Lard: Arra



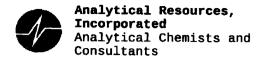
Analytical Resources, Incorporated Analytical Chemists and Consultants

- Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).
- S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
- NA The flagged analyte was not analyzed for
- NR Spiked compound recovery is not reported due to chromatographic interference
- NS The flagged analyte was not spiked into the sample
- M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
- Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.
- EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" (Dioxin/Furan analysis only)
- C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
- P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference
- X Analyte signal includes interference from polychlorinated diphenyl ethers. (Dioxin/Furan analysis only)
- Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. (Dioxin/Furan analysis only)

Laboratory Quality Assurance Plan

Page 2 of 3

Version 14-003 12/31/13



Geotechnical Data

- A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
- F Samples were frozen prior to particle size determination
- SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
- SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
- Weight of sample in some pipette aliquots was below the level required for accurate weighting

ANALYTICAL RESOURCES INCORPORATED

Sample ID: SSP-C-20140912

SAMPLE

Lab Sample ID: ZA04A LIMS ID: 14-18684

Matrix: Wipe

Page 1 of 1

Data Release Authorized: >

Reported: 09/24/14

Date Extracted: 09/17/14 Date Analyzed: 09/20/14 04:46 Instrument/Analyst: ECD7/JGR

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082A

Extraction Method: SW3580A

GPC Cleanup: No Sulfur Cleanup: No Acid Cleanup: Yes QC Report No: ZA04-Jorgensen Forge Project: JFOS Sheet Pile

Date Sampled: 09/12/14 Date Received: 09/12/14

Sample Amount: 1.00 Wipe Final Extract Volume: 10 mL Dilution Factor: 1.00 Silica Gel: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	1.0	< 1.0 U
53469-21-9	Aroclor 1242	1.0	< 1.0 U
12672-29-6	Aroclor 1248	2.0	< 2.0 Y
11097-69-1	Aroclor 1254	1.0	38 E
11096-82-5	Aroclor 1260	1.0	19 E
11104-28-2	Aroclor 1221	1.0	< 1.0 U
11141-16-5	Aroclor 1232	1.0	< 1.0 U
37324-23-5	Aroclor 1262	1.0	< 1.0 U
11100-14-4	Aroclor 1268	1.0	< 1.0 U

Reported in Total µg

PCB Surrogate Recovery

Decachlorobiphenyl	93.8%
Tetrachlorometaxylene	70.8%

FORM I

LAWY WWWW8



ORGANICS ANALYSIS DATA SHEET PCB by GC/ECD Method SW8082A Extraction Method: SW3580A

Page 1 of 1

Lab Sample ID: ZA04A LIMS ID: 14-18684

Matrix: Wipe

Data Release Authorized:

Reported: 09/24/14

Date Extracted: 09/17/14
Date Analyzed: 09/22/14 13:34
Instrument/Analyst: ECD7/JGR

GPC Cleanup: No Sulfur Cleanup: No Acid Cleanup: Yes Sample ID: SSP-C-20140912 DILUTION

QC Report No: ZA04-Jorgensen Forge

Project: JFOS Sheet Pile

Date Sampled: 09/12/14
Date Received: 09/12/14

Sample Amount: 1.00 Wipe Final Extract Volume: 10 mL

Dilution Factor: 5.00 Silica Gel: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	5.0	< 5.0 U
53469-21-9	Aroclor 1242	5.0	< 5.0 U
12672-29-6	Aroclor 1248	5.0	< 5.0 ช
11097-69-1	Aroclor 1254	5.0	41
11096-82-5	Aroclor 1260	5.0	20
11104-28-2	Aroclor 1221	5.0	< 5.0 U
11141-16-5	Aroclor 1232	5.0	< 5.0 U
37324-23-5	Aroclor 1262	5.0	< 5.0 U
11100-14-4	Aroclor 1268	5.0	< 5.0 U

Reported in Total µg

PCB Surrogate Recovery

Decachlorobiphenyl	125%
Tetrachlorometaxylene	73.1%

FORM I

ZAUU : FUAL



ORGANICS ANALYSIS DATA SHEET PCB by GC/ECD Method SW8082A Extraction Method: SW3580A

Page 1 of 1

Lab Sample ID: MB-091714

LIMS ID: 14-18684

Matrix: Wipe

Data Release Authorized: Reported: 09/24/14

Date Extracted: 09/17/14 Date Analyzed: 09/20/14 04:03 Instrument/Analyst: ECD7/JGR

GPC Cleanup: No Sulfur Cleanup: Yes Acid Cleanup: Yes

Sample ID: MB-091714

METHOD BLANK

QC Report No: ZA04-Jorgensen Forge

Project: JFOS Sheet Pile

Date Sampled: NA Date Received: NA

Sample Amount: 1.00 Wipe Final Extract Volume: 10 mL Dilution Factor: 1.00

Silica Gel: No

	.yte	RL	E	Result
Aroclor	1016	1.0	<	1.0 U
Aroclor	1242	1.0	<	1.0 U
Aroclor	1248	1.0	<	1.0 U
Aroclor	1254	1.0	<	1.0 U
Aroclor	1260 4	1.0	<	1.0 U
Aroclor	1221.	1.0	<	1.0 U
Aroclor	1232	1.0	<	1.0 U
Aroclor	1262	1.0	<	1.0 U
Aroclor	1268	1.0	<	1.0 U
	Aroclor Aroclor Aroclor Aroclor Aroclor Aroclor Aroclor	Aroclor 1016 Aroclor 1242 Aroclor 1248 Aroclor 1254 Aroclor 1260 Aroclor 1221 Aroclor 1232 Aroclor 1262 Aroclor 1268	Aroclor 1242 1.0 Aroclor 1248 1.0 Aroclor 1254 1.0 Aroclor 1260 1.0 Aroclor 1221 1.0 Aroclor 1232 1.0 Aroclor 1262 1.0	Aroclor 1242 1.0 < Aroclor 1248 1.0 < Aroclor 1254 1.0 < Aroclor 1260 1.0 < Aroclor 1221 1.0 < Aroclor 1232 1.0 < Aroclor 1262 1.0 <

Reported in Total µg

PCB Surrogate Recovery

Decachlorobiphenyl	82.5%
Tetrachlorometaxylene	67.2%

FORM I

ZAWY: WWWIE



ORGANICS ANALYSIS DATA SHEET PCB by GC/ECD Method SW8082A

Page 1 of 1

Lab Sample ID: LCS-091714

LIMS ID: 14-18684

Matrix: Wipe

Data Release Authorized:

Reported: 09/24/14

Date Extracted: 09/17/14 Date Analyzed: 09/20/14 04:24

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No Sulfur Cleanup: Yes Acid Cleanup: Yes

Sample ID: LCS-091714

LAB CONTROL

QC Report No: ZA04-Jorgensen Forge

Project: JFOS Sheet Pile

Date Sampled: 09/12/14 Date Received: 09/12/14

Sample Amount: 1.00 Wipe Final Extract Volume: 10 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Aroclor 1016	3.94	5.00	78.8%
Aroclor 1260	4.64	5.00	92.8%

PCB Surrogate Recovery

Decachlorobiphenyl	85.2%
Tetrachlorometaxylene	73.5%

Reported in Total µg

FORM III

ZAUG: WWWII



SW8082/PCB SURROGATE RECOVERY SUMMARY

Matrix: Wipe

QC Report No: ZA04-Jorgensen Forge Project: JFOS Sheet Pile

Client ID	DCBP	TCMX	TOT OUT
vin 001714		4	
MB-091714	82.5%	67.2%	0
LCS-091714	85.2%	73.5%	0
SSP-C-20140912	93.8%	70.8%	0
SSP-C-20140912 DL	125%	73.1%	0

		LCS/MB LIMITS		QC LIMITS
			4	
•	= Decachlorobiphenyl	(30-160)	-	(30-160)
(TCMX)	<pre>= Tetrachlorometaxylene</pre>	(30-160)		(30-160)

Prep Method: SW3580A Log Number Range: 14-18684 to 14-18684

PCB METHOD BLANK SUMMARY

BLANK NO.

ZA04MB1

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN FORGE

ARI Job No.: ZA04

Project: JFOS SHEET PILE

Lab Sample ID: ZA04MB1

Lab File ID: 0919A043

Date Extracted: 09/17/14

Matrix: SOLID

Date Analyzed: 09/20/14

Instrument ID: ECD7

Time Analyzed: 0403

GC Columns: ZB5/ZB35

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT	LAB	DATE
	SAMPLE NO.	SAMPLE ID	ANALYZED
	=======================================	========	========
01	ZA04LCS1	ZA04LCS1	09/20/14
02	SSP-C-20140912	ZA04A	09/20/14
03	SSP-C-20140912	ZA04A	09/22/14
			• •

ALL RUNS ARE DUAL COLUMN

6F 8082 INITIAL CALIBRATION OF AROCLOR 1016/1260

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04

Project: JFOS SHEET

GC Column: ZB5

Instrument ID: ECD7

Calibration Date: 07/21/14

SURROGATES

																MEAN			
X 5	5.54	- 5.7	4 0	7845	0	.7534	1	0.7572	1	0.7562	1	0.7662	1	0.7814	1	0.7665 1.1584	1	1.8	ļ

	lor-1016 RT WIN		•	0.1	.25	•	1.0	İ	R^2
2 3	7.54- 7.74 8.07- 8.27 8.25- 8.45 8.68- 8.88	0.0659 0.0279	0.0646	0.0641	0.0610	0.0595	0.0590	0.0623	4.6 6.0

AROCLOR AVERAGE %RSD = 7.2

roclor-1260	LVL1	1	LVL2		LVL3		LVL4		LVL5		LVL6	ļ	MEAN		&RSI
ak RT WIN	.02	-	0.05	-	0.1		.25		0.5	-	1.0	1			R^2
1 11.86-12.06	0.0500		 0.0483		0.0483		0.0424		0.0425		0.0413		0.0455	 	8.4
2 12.18-12.38	0.0463	j	0.0454	İ	0.0458	j	0.0407	İ	0.0411	ĺ	0.0403	ĺ	0.0432	Ì	6.
3 12.55-12.75	0.1222]	0.1211	-1	0.1241	-	0.1146		0.1186	-	0.1191		0.1200	1	2.1
4 12.95-13.15	0.0589		0.0584	- 1	0.0596		0.0545		0.0558	1	0.0556		0.0571		3.
5 13.13-13.33	0.0377	- 1	0.0375	- 1	0.0380	1	0.0349	- 1	0.0356	- [0.0354	1	0.0365		3.

AROCLOR AVERAGE %RSD = 5.0

Zno4: 66614

FORM VI PCB-1

Lauy Webit

6F 8082 INITIAL CALIBRATION OF AROCLOR 1016/1260

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: ZA04

Project: JFOS SHEET

GC Column: ZB35

Instrument ID: ECD7

Calibration Date: 07/21/14

SURROGATES

	RT WIN LVL	l LVL2	LVL3	LVL4	LVL5	LVL6	MEAN	%RSD
X	5.13- 5.33 1.219: 14.43-14.63 1.366:	2 1.0817	1.0669	1.0070	0.9783	0.9559	1.0515	9.1

				 -														. -	.
																MEAN			
	ık	RT	WIN	. 02	1	0.05	ļ	0.1		. 25	-	0.5	- [1.0	-		1	R^2	
																			.
1	1 7.	27-	7.47	0.0527	- 1	0.0481	- 1	0.0455		0.0408		0.0377		0.0349		0.0433	1	15.5	
1	8.	08-	8.28	0.1060	ļ	0.0978		0.0936	- 1	0.0846	İ	0.0805	- 1	0.0765	- 1	0.0898		12.5	1
	8.	56-	8.76	0.0277	1	0.0265	- 1	0.0252	-	0.0224		0.0214	- 1	0.0201		0.0239		12.7	1
4	8.	69-	8.89	0.0328	1	0.0297	-	0.0279	ŀ	0.0244		0.0228	- [0.0212	-1	0.0265	-	16.7	-

AROCLOR AVERAGE %RSD = 14.4

Aroclor-1260 Poak RT WIN	LVL1 .02	!	 L2 05	LVL3	•	LVL4 . 25		LVL5 0.5		LVL6 1.0		MEAN		%RSD R^2
1 11.72-11.92 2 12.26-12.46 3 12.54-12.74 4 13.10-13.30	0.0957	0.08	67 04	0.0839	i I	0.0740 0.0716 0.1485 0.1012	i	0.0698 0.1474	İ	0.0661 0.1420	İ		İ	14.6 10.7

AROCLOR AVERAGE %RSD = 13.3

LAUY WEWIL

FORM VI PCB-1

ZAUH : WWEL !

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

_ARI Job No.: ZA04

Project: JFOS SHEET

GC Column: ZB5

Instrument ID: ECD7

Calibration Date: 07/21/14

	Aroclo	r-1221	
Peak	RT	RT WIN	Cal Factor
1	6.091	5.99- 6.19	0.00772
2 3		6.20- 6.40 6.32- 6.52	0.00684 0.02014
	Aroclo	r-1232	1
Dook	RT	RT WIN	Cal Factor
reak		KI WIN	Factor
		7.54- 7.74	0.00792
2		8.06- 8.26	0.02446
	8.353		0.01050
4	8.489	8.39- 8.59	0.00763
	Aroclo	r-1242	[
_ ;			Cal
Peak	RT	RT WIN	Factor
1	7.641	7.54- 7.74	0.01529
		8.06- 8.26	0.04818
	8.353		0.02047
4 	9.326	9.23- 9.43	0.01988
	Aroclo	r-1248	Cal
Peak	RT	RT WIN	Factor
1	8.154	8.05- 8.25	0.03055
2	8.778	8.68- 8.88	0.01755
	9.321	9.22- 9.42	0.03044
4	9.797	9.70- 9.90	0.03767

FORM VI PCB-2A

page 1 of 2

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB5 Instrument ID: ECD7

Calibration Date: 07/21/14

	Aroglo	or-1254	
Donk	RT	RT WIN	Cal
reak	RI	RI WIN	Factor
	10.143	10.04-10.24	0.03598
	L0.533	10.43-10.63	0.02488
3 1	LO.675	10.57-10.77	0.04837
	L1.037		0.05159
5 1	L1.733	11.63-11.83	0.05112
	- 		·
	Aroclo	r-1262	
			Cal
Peak	RT	RT WIN	Factor
	11.963	11.86-12.06	0.06338
	L2.280	12.18-12.38	0.04986
3 1	L2.652	12.55-12.75	0.13623
4 1	L3.049	12.95-13.15	0.04413
5 1	13.162	13.06-13.26	0.05810
			
	Aroclo	r-1268	1
			Cal
Peak	RT	RT WIN	Factor
1 1	13.162	13.06-13.26	0.16503
	13.231	13.13-13.33	0.16508
	13.595		0.14388
	L4.225		0.44705
	LT.443	17.16-14.36	1 0.44703
1			

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

_ARI Job No.: ZA04

Project: JFOS SHEET

GC Column: ZB35

Instrument ID: ECD7

Calibration Date: 07/21/14

	Aroclo		
Peak	RT	RT WIN	Cal Factor
1 2 3 4	6.065 6.361 6.495 7.386	5.97- 6.17 6.26- 6.46 6.39- 6.59 7.29- 7.49	0.01356 0.00778 0.02335 0.00770
Peak	Aroclo	r-1232 RT WIN	Cal Factor
1 2 3 4	6.494 7.372 8.189 8.798	6.39- 6.59 7.27- 7.47 8.09- 8.29 8.70- 8.90	0.01645 0.01890 0.03588 0.01174
		r-1242	Cal
1 2 3 4	RT 6.489 7.366 8.182 9.263	RT WIN	Factor 0.01564 0.03278 0.06800 0.02490
Peak	Aroclo	r-1248 RT WIN	Cal Factor
1 2 3 4	7.356 8.170 8.859 10.206	7.26- 7.46 8.07- 8.27 8.76- 8.96 10.11-10.31	0.01614 0.04422 0.02396 0.04565

FORM VI PCB-2A

page 1 of 2

LAGH: BUGELO

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04 Project: JFOS SHEET

GC Column: ZB35 Instrument ID: ECD7

Calibration Date: 07/21/14

1	Aroclor-1254								
Peak	RT	RT WIN	Cal Factor						
1 9	 9.910	9.81-10.01	0.03100						
	0.100	10.00-10.20	0.03897						
	795	10.70-10.90	0.06467						
4 1:	L.055		0.06573						
5 1:	L.821	11.72-11.92	0.04902						
	- -								
	Aroclor-1262								
•	110010	1 1202	Cal						
Peak	RT	RT WIN	Factor						
									
J	2.370	12.27-12.47	0.08614						
1	2.643	12.54-12.74	0.17319						
	3.152		0.07678						
	3.211	13.11-13.31 13.75-13.95	0.11751 0.06071						
5 1.		13./5-13.95	0.06071						
1	Aroclo	r-1268							
			Cal						
Peak	RT 	RT WIN	Factor						
1 13	3.152	13.05-13.25	0.18571						
2 13	3.215	13.12-13.32	0.17538						
3 13	3.569	13.47-13.67	0.14298						
4 14	1.234	14.13-14.33	0.39624						

7F PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: ZA04

Project: JFOS SHEET

GC Column: ZB5

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1242 Time Analyzed: 0108

	RT W	MODOM	CALC	NOM	
RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
=====	=====	=====	======	======	=====
7.64	7.54	7.74	255.9	250.0	2.4
8.16	8.06	8.26	241.7	250.0	-3.3
8.35	8.25	8.45	239.3	250.0	-4.3
9.33	9.23	9.43	241.3	250.0	-3.5
	7.64 8.16 8.35	RT FROM 7.64 7.54 8.16 8.06 8.35 8.25	7.64 7.54 7.74 8.16 8.06 8.26 8.35 8.25 8.45	RT FROM TO AMOUNT (ng) 7.64 7.54 7.74 255.9 8.16 8.06 8.26 241.7 8.35 8.25 8.45 239.3	RT FROM TO AMOUNT (ng) (ng) ====== 7.64 7.54 7.74 255.9 250.0 8.16 8.06 8.26 241.7 250.0 8.35 8.25 8.45 239.3 250.0

AVERAGE %D = 3.4

FORM VII PCB

LAUG: WWWZZ

7F PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: ZA04

Project: JFOS SHEET

GC Column: ZB5

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1660

Time Analyzed:0130

	7	RT W	INDOW	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	ТО	AMOUNT (ng)	AMOUNT (ng)	%D
	======	=====	=====	======	=======	=====
Arocļor-1016-1	7.64	7.54	7.74	263.3	250.0	5.3
Arocior-1016-2	8.16	8.07	8.27	239.8	250.0	-4.1
Aroclor-1016-3	8.35	8.25	8.45	242.1	250.0	-3.1
Aroclor-1016-4	8.78	8.68	8.88	245.9	250.0	-1.6

AVERAGE D = 3.5

Date Analyzed:09/20/14

Lab Standard ID: AR1660

Time Analyzed :0130

COMPOUND/PEAK NO.	RT	RT W	INDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
=======================================	======	======	=====	======	=======	=====
Aroclor-1260-1	11.96	11.86	12.06	263.9	250.0	5.6
Aroclor-1260-2	12.28	12.18	12.38	255.7	250.0	2.3
Aroclor-1260-3	12.65	12.55	12.75	268.4	250.0	7.4
Aroclor-1260-4	13.05	12.95	13.15	254.7	250.0	1.9
Aroclor-1260-5	13.23	13.13	13.33	243.9	250.0	-2.4
	,	•		'	•	'

AVERAGE D = 3.9

ZAU4: 66623

FORM VII PCB

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: ZA04

Project: JFOS SHEET

GC Column: ZB5

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1248

Time Analyzed:0508

į į	RT WINDOW		CALC	NOM	
RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
= =====	=====	=====	======	======	====
8.16	8.05	8.25	249.9	250.0	-0.0
8.78	8.68	8.88	246.9	250.0	-1.2
9.33	9.22	9.42	246.2	250.0	-1.5
9.80	9.70	9.90	249.0	250.0	-0.4
	8.16 8.78 9.33	RT FROM = ===== 8.16 8.05 8.78 8.68 9.33 9.22	RT FROM TO ===================================	RT FROM TO AMOUNT (ng) = ===== 8.16 8.05 8.25 249.9 8.78 8.68 8.88 246.9 9.33 9.22 9.42 246.2	RT FROM TO AMOUNT (ng) (ng) (ng) (ng) (ng) (ng) (ng) (ng)

AVERAGE D = 0.8

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: ZA04

Project: JFOS SHEET

GC Column: ZB5

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed: 09/20/14

Lab Standard ID: AR1660

Time Analyzed: 0530

		RT WINDOW		CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	то	AMOUNT (ng)	AMOUNT (ng)	%D
=======================================	== =====		=====	=======	=======	=====
Aroclor-1016-1	7.64	7.54	7.74	265.8	250.0	6.3
Aroclor-1016-2	8.16	8.07	8.27	241.1	250.0	-3.6
Aroclor-1016-3	8.35	8.25	8.45	244.9	250.0	-2.0
Aroclor-1016-4	8.78	8.68	8.88	248.8	250.0	-0.5

AVERAGE %D = 3.1

Date Analyzed:09/20/14

_Lab Standard ID: AR1660

Time Analyzed:0530

COMPOUND/PEAK NO.	RT	RT WI FROM	TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
	=====	=====	=====		=======	=====
Aroclor-1260-1	11.96	11.86	12.06	267.8	250.0	7.1
Aroclor-1260-2	12.28	12.18	12.38	260.0	250.0	4.0
Aroclor-1260-3	12.65	12.55	12.75	272.6	250.0	9.0
Aroclor-1260-4	13.05	12.95	13.15	260.4	250.0	4.2
Aroclor-1260-5	13.23	13.13	13.33	249.7	250.0	-0.1
	· .	·	•	, 		

AVERAGE D = 4.9

ZAU4: UUUZS

ZAGH: BBBZ f

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04

Project: JFOS SHEET

GC Column: ZB35

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed :09/20/14

Lab Standard ID: AR1242

Time Analyzed:0108

	!	RT W	MOOM	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
	=====	=====	=====	======	======	=====
Aroclor-1242-1	6.49	6.39	6.59	293.4	250.0	17.3
Aroclor-1242-2	7.37	7.27	7.47	295.7	250.0	18.3
Aroclor-1242-3	8.18	8.08	8.28	285.4	250.0	14.2
Aroclor-1242-4	9.26	9.16	9.36	284.0	250.0	13.6
						<u>-</u> '

AVERAGE D = 15.8

FORM VII PCB

ZAW4: 88628

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: ZA04

Project: JFOS SHEET

GC Column: ZB35

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed: 09/20/14

Lab Standard ID: AR1660

Time Analyzed: 0130

		RT WINDOW		CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
	=== ====	=====	=====	=======	=======	=====
Aroclor-1016-1	7.36	7.27	7.47	293.0	250.0	17.2
Aroclor-1016-2	8.18	8.08	8.28	273.7	250.0	9.5
Aroclor-1016-3	8.65	8.56	8.76	283.3	250.0	13.3
Aroclor 1016-4	8.79	8.69	8.89	278.3	250.0	11.3

AVERAGE D = 12.8

Date Analyzed :09/20/14

Lab Standard ID: AR1660

Time Analyzed:0130

COMPOUND/PEAK NO.	RT	RT WI FROM	INDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
=======================================	======	======	=====	=======	-======	=====
Aroclor-1260-1	11.82	11.72	11.92	224.2	250.0	-10.3
Aroclor-1260-2	12.36	12.26	12.46	230.3	250.0	-7.9
Aroclor-1260-3	12.64	12.54	12.74	234.7	250.0	-6.1
Aroclor-1260-4	13.20	13.10	13.30	220.5	250.0	-11.8
	•	•	•	•		•

AVERAGE D = 9.0

ZAUH: BUBUB

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: ZA04

Project: JFOS SHEET

GC Column: ZB35

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed: 09/20/14

Lab Standard ID: AR1248

Time Analyzed:0508

		RT WINDOW		CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT	AMOUNT	%D
				(ng)	(ng)	
	=====	=====	=====	=======	=======	=====
Aroclor-1248-1	7.36	7.26	7.46	302.6	250.0	21.0
Aroclor-1248-2	8.18	8.07	8.27	295.6	250.0	18.2
Aroclor-1248-3	8.86	8.76	8.96	279.2	250.0	11.7
Aroclor-1248-4	10.21	10.11	10.31	305.9	250.0	22.4
	•	•	•	•	•	•

AVERAGE D = 18.3

LEBBB: PBAZ

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: ZA04

Project: JFOS SHEET

GC Column: ZB35

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed: 09/20/14

Lab Standard ID: AR1660

Time Analyzed: 0530

		RT W	INDOW	CALC	NOM		
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D	
=======================================	=====	=====	=====	=======	======	=====	
Aroclor-1016-1	7.36	7.27	7.47	291.0	250.0	16.4	
Aroclor-1016-2	8.18	8.08	8.28	271.9	250.0	8.8	
Aroclor-1016-3	8.65	8.56	8.76	282.7	250.0	13.1	
Aroclor-1016-4	8.79	[,] 8.69	8.89	278.2	250.0	11.3	
-	•		•	•	•	,	

AVERAGE D = 12.4

Date Analyzed: 09/20/14

Lab Standard ID: AR1660

Time Analyzed :0530

		RT WINDOW		CALC	NOM		
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D	
=======================================	=====	=====	=====	=======	======	=====	
Aroclor-1260-1	11.82	11.72	11.92	224.0	250.0	-10.4	
Aroclor-1260-2	12.36	12.26	12.46	230.0	250.0	-8.0	
Aroclor-1260-3	12.64	12.54	12.74	235.7	250.0	-5.7	
Aroclor-1260-4	13.20	13.10	13.30	221.1	250.0	-11.5	

AVERAGE D = 8.9

LAU4: WWW3Z

ZAUS: BUUSS

FORM 8 PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: ZA04

Project: JFOS SHEET

GC Column: ZB5 ID: 0.53 (mm)

Instrument ID: ECD7

Init. Calib. Date: 07/21/14

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

ICAL MIDPT				ļ		IS1		IS2	
ICAL MIDPT						AREA	RT	AREA	RT
UPPER LIMIT 8868842 2.798 8154488 14.894 1.000 1					======	=======	======	=======	======
LOWER LIMIT				ICAL	MIDPT	4434421	2.698	4077244	14.794
CLIENT				UPPER	LIMIT	8868842	2.798	8154488	14.894
SAMPLE NO. SAMPLE ID ANALYZED TIME AREA RT AREA RT				LOWER	LIMIT	2217210	2.598	2038622	14.694
SAMPLE NO. SAMPLE ID ANALYZED TIME AREA RT AREA RT								·	ll
========		CLIENT	LAB	DATE		IS1		IS2	
O1 ZZZZZ	1	SAMPLE NO.	SAMPLE ID	ANALYZED	TIME	AREA	RT	AREA	RT
0.25PPMAR166		=========			=====	=======	======	=======	=====
0.02PPMAR166	01	ZZZZZ	ZZZZZ		1626	4373805	2.692	3760196	14.794
04 0.05PPMAR166 07/21/14 1732 4441352 2.694 3882218 14.795 05 1PPMAR1660 07/21/14 1754 4414652 2.693 3889578 14.795 06 0.1PPMAR1660 07/21/14 1816 4521857 2.697 3895919 14.795 07 0.5PPMAR1660 07/21/14 1837 4493869 2.693 3945031 14.795 08 AR1242 07/21/14 1859 4438700 2.692 3879215 14.795 09 AR1248 07/21/14 1921 4414839 2.697 3887155 14.795 10 AR1254 07/21/14 1943 4508938 2.695 3960286 14.795 11 AR2162 07/21/14 2027 4552734 2.702 4020488 14.795 13 ZZZZZ ZZZZZ 07/21/14 2049 4445508 2.694 3936762 14.795 14 ZZZZZ ZZZZZ 07/21/14 2049	02		0.25PPMAR166		1648	4434421	2.698	4077244	14.794
1PPMAR1660	03		0.02PPMAR166		1710	4447124	2.695	3891807	14.794
06 0.1PPMAR1660 07/21/14 1816 4521857 2.697 3895919 14.795 07 0.5PPMAR1660 07/21/14 1837 4493869 2.693 3945031 14.795 08 AR1242 07/21/14 1859 4438700 2.692 3879215 14.795 09 AR1248 07/21/14 1921 4414839 2.697 3887155 14.795 10 AR1254 07/21/14 1943 4508938 2.695 3960286 14.795 11 AR2162 07/21/14 2005 4494447 2.696 3952241 14.795 12 AR3268 07/21/14 2027 4552734 2.702 4020488 14.795 13 ZZZZZ ZZZZZZ 07/21/14 2049 4445508 2.694 3936762 14.795 14 ZZZZZ ZZZZZZ 07/21/14 2111 4558602 2.696 4045633 14.795 15 ZZZZZZ ZZZZZ 07/21/14	04		0.05PPMAR166	07/21/14	1732	4441352	2.694	3882218	14.795
07 0.5PPMAR1660 07/21/14 1837 4493869 2.693 3945031 14.795 08 AR1242 07/21/14 1859 4438700 2.692 3879215 14.795 09 AR1248 07/21/14 1921 4414839 2.697 3887155 14.795 10 AR1254 07/21/14 1943 4508938 2.695 3960286 14.795 11 AR2162 07/21/14 2005 4494447 2.696 3952241 14.795 12 AR3268 07/21/14 2027 4552734 2.702 4020488 14.795 13 ZZZZZ ZZZZZ 07/21/14 2049 4445508 2.694 3936762 14.795 14 ZZZZZ ZZZZZ 07/21/14 2111 4558602 2.696 4045633 14.795 15 ZZZZZ ZZZZZ 07/21/14 2133 4461342 2.697 4016945 14.794 16 ZZZZZ ZZZZZ 07/21/14	05		1PPMAR1660		1754	4414652	2.693	3889578	14.795
08 AR1242 07/21/14 1859 4438700 2.692 3879215 14.795 09 AR1248 07/21/14 1921 4414839 2.697 3887155 14.795 10 AR1254 07/21/14 1943 4508938 2.695 3960286 14.795 11 AR2162 07/21/14 2005 4494447 2.696 3952241 14.795 12 AR3268 07/21/14 2027 4552734 2.702 4020488 14.795 13 ZZZZZ ZZZZZ 07/21/14 2049 4445508 2.694 3936762 14.795 14 ZZZZZ ZZZZZ 07/21/14 2111 4558602 2.696 4045633 14.795 15 ZZZZZ ZZZZZ 07/21/14 2133 4461342 2.697 4016945 14.795 16 ZZZZZ ZZZZZ 07/21/14 2154 4529995 2.696 4048326 14.794 17 ZZZZZ 27/21/14 2216 4527689 2.697 4039776 14.794 18 <t< td=""><td>06</td><td></td><td>0.1PPMAR1660</td><td></td><td>1816</td><td>4521857</td><td>2.697</td><td>3895919</td><td>14.795 </td></t<>	06		0.1PPMAR1660		1816	4521857	2.697	3895919	14.795
09 AR1248 07/21/14 1921 4414839 2.697 3887155 14.795 10 AR1254 07/21/14 1943 4508938 2.695 3960286 14.795 11 AR2162 07/21/14 2005 4494447 2.696 3952241 14.795 12 AR3268 07/21/14 2027 4552734 2.702 4020488 14.795 13 ZZZZZ ZZZZZ 07/21/14 2049 4445508 2.694 3936762 14.795 14 ZZZZZ ZZZZZ 07/21/14 2111 4558602 2.696 4045633 14.795 15 ZZZZZ ZZZZZ 07/21/14 2133 4461342 2.697 4016945 14.795 16 ZZZZZ ZZZZZ 07/21/14 2154 4529995 2.696 4048326 14.794 17 ZZZZZ ZZZZZ 07/21/14 216 4527689 2.697 4039776 14.794 18 ZZZZZ ZZZZZ 07/21/14 2238 4512425 2.694 4015293 14.794 20 AR1660 09/20/14	07		0.5PPMAR1660	07/21/14	1837	4493869	2.693	3945031	14.795
10 AR1254 07/21/14 1943 4508938 2.695 3960286 14.795 11 AR2162 07/21/14 2005 4494447 2.696 3952241 14.795 12 AR3268 07/21/14 2027 4552734 2.702 4020488 14.795 13 ZZZZZ ZZZZZ 07/21/14 2049 4445508 2.694 3936762 14.795 14 ZZZZZ ZZZZZ 07/21/14 2111 4558602 2.696 4045633 14.795 15 ZZZZZ ZZZZZ 07/21/14 2133 4461342 2.697 4016945 14.795 16 ZZZZZ ZZZZZ 07/21/14 2154 4529995 2.696 4048326 14.794 17 ZZZZZ ZZZZZ 07/21/14 2216 4527689 2.697 4039776 14.794 18 ZZZZZ ZZZZZ 07/21/14 2238 4512425 2.694 4015293 14.794 20 AR1660 09/20/14 0108 5417163 2.703 4160853 14.794	80		AR1242	07/21/14	1859	4438700	2.692	3879215	14.795
11 AR2162 07/21/14 2005 4494447 2.696 3952241 14.795 12 AR3268 07/21/14 2027 4552734 2.702 4020488 14.795 13 ZZZZZ ZZZZZ 07/21/14 2049 4445508 2.694 3936762 14.795 14 ZZZZZ ZZZZZ 07/21/14 2111 4558602 2.696 4045633 14.795 15 ZZZZZ ZZZZZ 07/21/14 2133 4461342 2.697 4016945 14.795 16 ZZZZZ ZZZZZ 07/21/14 2154 4529995 2.696 4048326 14.794 17 ZZZZZ ZZZZZ 07/21/14 2216 4527689 2.697 4039776 14.794 18 ZZZZZ ZZZZZ 07/21/14 2216 4527689 2.697 4039776 14.794 19 AR1242 09/20/14 0108 5417163 2.703 4160853 14.794 20 AR1660 09/20/14 0130 4679826 2.700 4027634 14.794	09		AR1248	07/21/14	1921	4414839	2.697	3887155	14.795
12 AR3268 07/21/14 2027 4552734 2.702 4020488 14.795 13 ZZZZZ 07/21/14 2049 4445508 2.694 3936762 14.795 14 ZZZZZ 07/21/14 2111 4558602 2.696 4045633 14.795 15 ZZZZZ ZZZZZ 07/21/14 2133 4461342 2.697 4016945 14.795 16 ZZZZZ ZZZZZ 07/21/14 2154 4529995 2.696 4048326 14.794 17 ZZZZZ 2ZZZZ 07/21/14 2216 4527689 2.697 4039776 14.794 18 ZZZZZ 2ZZZZ 07/21/14 2238 4512425 2.694 4015293 14.794 19 AR1242 09/20/14 0108 5417163 2.703 4160853 14.794 20 AR1660 09/20/14 0130 4679826 2.700 4027634 14.794 21 ZA04MB1 2A04MB1 09/20/14 0403 5460167 2.701 4556347 14.794	10		AR1254		1943	4508938	2.695	3960286	14.795
13 ZZZZZ ZZZZZ 07/21/14 2049 4445508 2.694 3936762 14.795 14 ZZZZZ ZZZZZ 07/21/14 2111 4558602 2.696 4045633 14.795 15 ZZZZZ ZZZZZ 07/21/14 2133 4461342 2.697 4016945 14.795 16 ZZZZZ ZZZZZ 07/21/14 2154 4529995 2.696 4048326 14.794 17 ZZZZZ ZZZZZ 07/21/14 2216 4527689 2.697 4039776 14.794 18 ZZZZZ ZZZZZ 07/21/14 2238 4512425 2.694 4015293 14.794 19 AR1242 09/20/14 0108 5417163 2.703 4160853 14.794 20 AR1660 09/20/14 0130 4679826 2.700 4027634 14.794 21 ZA04MB1 ZA04MB1 09/20/14 0403 5460167 2.701 4556347 14.794 22 ZA04LCS1 ZA04LCS1 09/20/14 0424 5284139 2.702 4416606 14.794 23 SSP-C-201409 ZA04A 09/20/14 0446 5460204 2.703 4583791 14.793	11		AR2162	07/21/14	2005	4494447	2.696	3952241	14.795
14 ZZZZZ ZZZZZ 07/21/14 2111 4558602 2.696 4045633 14.795 15 ZZZZZ ZZZZZ 07/21/14 2133 4461342 2.697 4016945 14.795 16 ZZZZZ ZZZZZ 07/21/14 2154 4529995 2.696 4048326 14.794 17 ZZZZZ ZZZZZ 07/21/14 2216 4527689 2.697 4039776 14.794 18 ZZZZZ ZZZZZ 07/21/14 2238 4512425 2.694 4015293 14.794 19 AR1242 09/20/14 0108 5417163 2.703 4160853 14.794 20 AR1660 09/20/14 0130 4679826 2.700 4027634 14.794 21 ZA04MB1 ZA04MB1 09/20/14 0403 5460167 2.701 4556347 14.794 22 ZA04LCS1 ZA04LCS1 09/20/14 0424 5284139 2.702 4416606 14.794 23 SSP-C-201409 ZA04A 09/20/14 0446 5460204 2.703 4583791 14.793	12		AR3268	07/21/14	2027	4552734	2.702	4020488	14.795
15 ZZZZZ ZZZZZ 07/21/14 2133 4461342 2.697 4016945 14.795 16 ZZZZZ ZZZZZ 07/21/14 2154 4529995 2.696 4048326 14.794 17 ZZZZZ ZZZZZ 07/21/14 2216 4527689 2.697 4039776 14.794 18 ZZZZZ ZZZZZ 07/21/14 2238 4512425 2.694 4015293 14.794 19 AR1242 09/20/14 0108 5417163 2.703 4160853 14.794 20 AR1660 09/20/14 0130 4679826 2.700 4027634 14.794 21 ZA04MB1 ZA04MB1 09/20/14 0403 5460167 2.701 4556347 14.794 22 ZA04LCS1 ZA04LCS1 09/20/14 0424 5284139 2.702 4416606 14.794 23 SSP-C-201409 ZA04A 09/20/14 0446 5460204 2.703 4583791 14.793	13	ZZZZZ	ZZZZZ	07/21/14	2049	4445508	2.694	3936762	14.795
16 ZZZZZ ZZZZZ 07/21/14 2154 4529995 2.696 4048326 14.794 17 ZZZZZ ZZZZZ 07/21/14 2216 4527689 2.697 4039776 14.794 18 ZZZZZ ZZZZZ 07/21/14 2238 4512425 2.694 4015293 14.794 19 AR1242 09/20/14 0108 5417163 2.703 4160853 14.794 20 AR1660 09/20/14 0130 4679826 2.700 4027634 14.794 21 ZA04MB1 ZA04MB1 09/20/14 0403 5460167 2.701 4556347 14.793 22 ZA04LCS1 ZA04LCS1 09/20/14 0424 5284139 2.702 4416606 14.794 23 SSP-C-201409 ZA04A 09/20/14 0446 5460204 2.703 4583791 14.793	14	ZZZZZ	ZZZZZ	07/21/14	2111	4558602	2.696	4045633	14.795
17 ZZZZZ ZZZZZ 07/21/14 2216 4527689 2.697 4039776 14.794 18 ZZZZZ ZZZZZ 07/21/14 2238 4512425 2.694 4015293 14.794 19 AR1242 09/20/14 0108 5417163 2.703 4160853 14.794 20 AR1660 09/20/14 0130 4679826 2.700 4027634 14.794 21 ZA04MB1 ZA04MB1 09/20/14 0403 5460167 2.701 4556347 14.793 22 ZA04LCS1 ZA04LCS1 09/20/14 0424 5284139 2.702 4416606 14.794 23 SSP-C-201409 ZA04A 09/20/14 0446 5460204 2.703 4583791 14.793	15	ZZZZZ	ZZZZZ	07/21/14	2133	4461342	2.697	4016945	14.795
18 ZZZZZ ZZZZZ 07/21/14 2238 4512425 2.694 4015293 14.794 19 AR1242 09/20/14 0108 5417163 2.703 4160853 14.794 20 AR1660 09/20/14 0130 4679826 2.700 4027634 14.794 21 ZA04MB1 ZA04MB1 09/20/14 0403 5460167 2.701 4556347 14.793 22 ZA04LCS1 ZA04LCS1 09/20/14 0424 5284139 2.702 4416606 14.794 23 SSP-C-201409 ZA04A 09/20/14 0446 5460204 2.703 4583791 14.793	16	ZZZZZ	ZZZZZ		2154	4529995	2.696	4048326	14.794
19 AR1242 09/20/14 0108 5417163 2.703 4160853 14.794 20 AR1660 09/20/14 0130 4679826 2.700 4027634 14.794 21 ZA04MB1 09/20/14 0403 5460167 2.701 4556347 14.793 22 ZA04LCS1 ZA04LCS1 09/20/14 0424 5284139 2.702 4416606 14.794 23 SSP-C-201409 ZA04A 09/20/14 0446 5460204 2.703 4583791 14.793	17	ZZZZZ	ZZZZZ	07/21/14	2216	4527689	2.697	4039776	14.794
20 AR1660 09/20/14 0130 4679826 2.700 4027634 14.794 21 ZA04MB1 ZA04MB1 09/20/14 0403 5460167 2.701 4556347 14.793 22 ZA04LCS1 ZA04LCS1 09/20/14 0424 5284139 2.702 4416606 14.794 23 SSP-C-201409 ZA04A 09/20/14 0446 5460204 2.703 4583791 14.793	18	ZZZZZ	ZZZZZ	07/21/14	2238	4512425	2.694	4015293	14.794
21 ZA04MB1 ZA04MB1 09/20/14 0403 5460167 2.701 4556347 14.793 22 ZA04LCS1 ZA04LCS1 09/20/14 0424 5284139 2.702 4416606 14.794 23 SSP-C-201409 ZA04A 09/20/14 0446 5460204 2.703 4583791 14.793	19		AR1242	09/20/14	0108	5417163	2.703	4160853	14.794
22 ZA04LCS1 ZA04LCS1 09/20/14 0424 5284139 2.702 4416606 14.794 23 SSP-C-201409 ZA04A 09/20/14 0446 5460204 2.703 4583791 14.793	20		AR1660		0130	4679826	2.700	4027634	14.794
23 SSP-C-201409 ZA04A 09/20/14 0446 5460204 2.703 4583791 14.793	21	ZA04MB1	ZA04MB1	09/20/14	0403	5460167	2.701	4556347	14.793
	22	ZA04LCS1	ZA04LCS1	09/20/14	0424	5284139	2.702	4416606	14.794
24 AR1248 09/20/14 0508 5158208 2.704 4516663 14.793	23	SSP-C-201409	ZA04A	09/20/14	0446	5460204	2.703	4583791	14.793
	24		AR1248	09/20/14	0508	5158208	2.704	4516663	14.793
25 AR1660 09/20/14 0530 4694209 2.701 4060251 14.794	25]	AR1660	09/20/14	0530	4694209	2.701	4060251	14.794
	Ì					l			I

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min

IS2 = Hexabromobiphenyl

^{*} Indicates value outside QC Limits

page 1 of 1

FORM VIII PCB

ZAUN WEESS

FORM 8 PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: ZA04

Project: JFOS SHEET

_GC Column: ZB35 ID: 0.53(mm)

Instrument ID: ECD7

Init. Calib. Date: 07/21/14

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

					IS1		IS2	
			1		AREA	RT	AREA	RT
			======	======	=======	======	=======	=====
	•		ICAL	MIDPT	11221020	3.068	7927142	15.138
			UPPER	LIMIT	22442040	3.168	15854284	15.238
			LOWER	LIMIT	5610510	2.968	3963571	15.038
								lI
	CLIENT	LAB	DATE		IS1		IS2	
1	SAMPLE NO.	SAMPLE ID	ANALYZED	TIME	AREA	RT	AREA	RT
{		=========		=====	=======	======	=======	======
	ZZZZZ	ZZZZZ	07/21/14	1626	11004730	3.063	7358659	15.138
02		0.25PPMAR166	07/21/14	1648	11221020	3.068	7927142	15.138
03		0.02PPMAR166	• •	1710	11165593	3.066	7592758	15.138
04		0.05PPMAR166	· · · ·	1732	11143504	3.065		15.139
05		1PPMAR1660	07/21/14	1754	11066585	3.065	7627214	15.138
06		0.1PPMAR1660	07/21/14	1816	11325344	3.067	7687777	15.138
07		0.5PPMAR1660	07/21/14	1837	11352435	3.063	7765451	15.138
08		AR1242	07/21/14	1859	11252651	3.063	7692669	15.138
09		AR1248	07/21/14	1921	11180919	3.066	7655141	15.138
10		AR1254	07/21/14	1943	11293843	3.066	7784494	15.138
11		AR2162	07/21/14	2005	11029310	3.067	7767574	15.137
12		AR3268	07/21/14	2027	11362773	3.070	7876862	15.138
13	ZZZZZ	ZZZZZ	07/21/14	2049	11184271	3.065	7717457	15.139
14	ZZZZZ	ZZZZZ	07/21/14	2111	11369418	3.066	7903232	15.138
15	ZZZZZ	ZZZZZ	07/21/14	2133	11175868	3.067	7850594	15.137
16	ZZZZZ	ZZZZZ	07/21/14	2154	11269109	3.066	7889154	15.137
17	ZZZZZ	ZZZZZ	07/21/14	2216	11177181	3.066	7868041	15.138
18	ZZZZZ	ZZZZZ	07/21/14	2238	11096232	3.064	7812050	15.137
19		AR1242	09/20/14	0108	9231366	3.066	7023173	15.132
20		AR1660	09/20/14	0130	7770669	3.065	6609828	15.132
21	ZA04MB1	ZA04MB1	09/20/14	0403	11876283	3.064	7765174	15.131
22	ZA04LCS1	ZA04LCS1	09/20/14	0424	11298415	3.065	7522486	15.132
23	SSP-C-201409	ZA04A	09/20/14	0446	11803674	3.065	9930475	15.132
24		AR1248	09/20/14	0508	8863276	3.067	7646947	15.132
25		AR1660	09/20/14	0530	7902677	3.065	6867926	15.132
j		l <u></u> i		l	l			

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min

IS2 = Hexabromobiphenyl

^{*} Indicates value outside QC Limits

page 1 of 1

FORM VIII PCB

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: ZA04

Project: JFOS SHEET

GC Column: ZB5

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed:09/22/14

Lab Standard ID: AR1248 Time Analyzed :1228

		RT WINDOW		CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
	======	=====	======	======	=======	=====
Aroclor-1248-1	8.15	8.05	8.25	254.1	250.0	1.6
Aroclor-1248-2	8.78	8.68	8.88	251.0	250.0	0.4
Aroclor-1248-3	9.32	9.22	9.42	249.4	250.0	-0.2
Aroclor-1248-4	9.80	9.70	9.90	251.5	250.0	0.6
Arocior-1248-4	9.80	9.70	9.90	251.5	250.0	0.

AVERAGE D = 0.7

FORM VII PCB

35364 H0636

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: ZA04

Project: JFOS SHEET

GC Column: ZB5

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed:09/22/14

Lab Standard ID: AR1660

Time Analyzed :1250

COMPOUND/PEAK NO.	RT	RT W	TO	CALC AMOUNT	NOM AMOUNT	%D
				(ng)	(ng)	
	======	=====	=====	=======	=======	=====
Aroclor-1016-1	7.64	7.54	7.74	268.7	250.0	7.5
Aroclor-1016-2	8.16	8.07	8.27	244.8	250.0	-2.1
Aroclor-1016-3	8.35	8.25	8.45	248.3	250.0	-0.7
Aroclor-1016-4	8.78	8.68	8.88	252.5	250.0	1.0

AVERAGE D = 2.8

Date Analyzed:09/22/14

Lab Standard ID: AR1660

Time Analyzed :1250

		RT W	INDOW	CALC	NOM	
COMPOUND/PEAK NO.	RT.	FROM	TO	AMOUNT	AMOUNT	%D
				(ng)	(ng)	
	=====	=====	=====	=======	=======	=====
Aroclor-1260-1	11.96	11.86	12.06	303.5	250.0	21.4
Aroclor-1260-2	12.28	12.18	12.38	289.8	250.0	15.9
Aroclor-1260-3	12.65	12.55	12.75	302.4	250.0	20.9
Aroclor-1260-4	13.05	12.95	13.15	285.6	250.0	14.2
Aroclor-1260-5	13.23	13.13	13.33	272.4	250.0	9.0
	•	•	-	,	•	-

AVERAGE D = 16.3

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: ZA04

Project: JFOS SHEET

GC Column: ZB5

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed:09/22/14

Lab Standard ID: AR1254

Time Analyzed :1356

		RT WINDOW		CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	ТО	AMOUNT (ng)	AMOUNT (ng)	%D
=======================================	======	=====	=====	======	======	=====
Aroclor-1254-1	10.14	10.04	10.24	275.9	250.0	10.3
Aroclor-1254-2	10.53	10.43	10.63	228.5	250.0	-8.6
Aroclor-1254-3	10.67	10.57	10.77	269.2	250.0	7.7
Aroclor-1254-4	11.04	10.94	11.14	271.5	250.0	8.8
Aroclor-1254-5	11.73	11.63	11.83	262.7	250.0	5.1

AVERAGE %D = 8.1

2A64:66642

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: ZA04

Project: JFOS SHEET

GC Column: ZB5

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed:09/22/14

Lab Standard ID: AR1660

Time Analyzed :1418

	RT WINDOW		CALC	NOM	
RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
: =====	=====	=====	======	=======	====
7.64	7.54	7.74	268.3	250.0	7.3
8.17	8.07	8.27	243.8	250.0	-2.5
8.35	8.25	8.45	247.1	250.0	-1.2
8.78	8.68	8.88	252.5	250.0	1.0
	7.64 8.17 8.35	RT FROM	RT FROM TO ====== 7.64 7.54 7.74 8.17 8.07 8.27 8.35 8.25 8.45	RT FROM TO AMOUNT (ng) ====== 7.64 7.54 7.74 268.3 8.17 8.07 8.27 243.8 8.35 8.25 8.45 247.1	RT FROM TO AMOUNT (ng) (ng) (ng) (ng) (ng) (ng) (ng) (ng)

AVERAGE D = 3.0

Date Analyzed: 09/22/14

Lab Standard ID: AR1660

Time Analyzed :1418

COMPOUND/PEAK NO.	RT	RT WI FROM	TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
=======================================	======	=====	=====	=======	=======	=====
Aroclor-1260-1	11.96	11.86	12.06	298.7	250.0	19.5
Aroclor-1260-2	12.28	12.18	12.38	285.1	250.0	14.0
Aroclor-1260-3	12.65	12.55	12.75	297.9	250.0	19.2
Aroclor-1260-4	13.05	12.95	13.15	281.9	250.0	12.8
Aroclor-1260-5	13.23	13.13	13.33	269.6	250.0	7.8
	•	•	•			•

AVERAGE D = 14.7

ZAWY: WEWYS

ZA64 : 20044

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: ZA04

Project: JFOS SHEET

GC Column: ZB35

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed:09/22/14

Lab Standard ID: AR1248

Time Analyzed :1228

		RT W	INDOW	CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
	=====	=====	=====	=======		=====
Aroclor-1248-1	7,36	7.26	7.46	306.8	250.0	22.7
Aroclor-1248-2	8.17	8.07	8.27	303.3	250.0	21.3
Aroclor-1248-3	8.86	8.76	8.96	287.7	250.0	15.1
Aroclor-1248-4	10.21	10.11	10.31	301.7	250.0	20.7
	•		'			•

AVERAGE D = 19.9

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: ZA04

Project: JFOS SHEET

GC Column: ZB35

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed:09/22/14

Lab Standard ID: AR1660 Time Analyzed :1250

	1	RT WINDOW		CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	TMUOMA (ng)	AMOUNT (ng)	%D
=======================================	=====	=====	=====	=======	======	====
Aroclor-1016-1	7.36	7.27	7.47	296.6	250.0	18.6
Aroclor-1016-2	8.18	8.08	8.28	279.4	250.0	11.8
Aroclor-1016-3	8.65	8.56	8.76	289.1	250.0	15.6
Aroclor-1016-4	8.79	8.69	8.89	283.8	250.0	13.5
		•			ļ	

AVERAGE %D = 14.9

Date Analyzed: 09/22/14

Lab Standard ID: AR1660 Time Analyzed :1250

		RT WINDOW		CALC	NOM		
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D	
	: ======	=====	=====	======	======	=====	
Aroclor-1260-1	11.82	11.72	11.92	237.5	250.0	-5.0	
Aroclor-1260-2	12.36	12.26	12.46	237.9	250.0	-4.8	
Aroclor-1260-3	12.63	12.54	12.74	246.8	250.0	-1.3	
Aroclor-1260-4	13.20	13.10	13.30	231.0	250.0	-7.6	

AVERAGE D = 4.7

ZAUH : UUUHG

ZACH CCCS :

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: ZA04

Project: JFOS SHEET

GC Column: ZB35

Intrument: ECD7

Init. Calib. Date: 07/21/14

Lab Standard ID: AR1254

Date Analyzed: 09/22/14

Time Analyzed: 1356

COMPOUND/PEAK NO.	RT	RT WI FROM	TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D	
Aroclor-1254-1	9.91	9.81	10.01	315.4	250.0	26.2	<-
Aroclor-1254-2	10.10	10.00	10.20	311.6	250.0	24.6	ļ
Aroclor-1254-3	10.80	10.70	10.90	284.3	250.0	13.7	
Aroclor-1254-4	11.06	10.96	11.16	308.8	250.0	23.5	
Aroclor-1254-5	11.82	11.72	11.92	290.2	250.0	16.1	

AVERAGE %D = 20.8

Lab Name: ANALYTICAL RESOURCES INC Client: JORGENSEN

ARI Job No.: ZA04

Project: JFOS SHEET

GC Column: ZB35

Intrument: ECD7

Init. Calib. Date: 07/21/14

Date Analyzed: 09/22/14

Lab Standard ID: AR1660

Time Analyzed :1418

		RT WINDOW		CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
=======================================	=====	=====	=====	=======	=======	=====
Aroclor-1016-1	7.37	7.27	7.47	294.7	250.0	17.9
Aroclor-1016-2	8.18	8.08	8.28	277.0	250.0	10.8
Aroclor-1016-3	8.66	8.56	8.76	286.9	250.0	14.8
Aroclor-1016-4	8.79	8.69	8.89	282.0	250.0	12.8
		'	•	,	'	

AVERAGE %D = 14.1

Date Analyzed: 09/22/14

Lab Standard ID: AR1660

Time Analyzed: 1418

		RT WINDOW		CALC	NOM	
COMPOUND/PEAK NO.	RT	FROM	TO	AMOUNT (ng)	AMOUNT (ng)	%D
=======================================	= ======	=====	=====	======	======	=====
Aroclor-1260-1	11.82	11.72	11.92	249.4	250.0	-0.2
Aroclor-1260-2	12.36	12.26	12.46	250.6	250.0	0.2
Aroclor-1260-3	12.64	12.54	12.74	254.3	250.0	1.7
Aroclor-1260-4	13.20	13.10	13.30	237.6	250.0	-5.0

AVERAGE D = 1.8

FORM 8 PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: ZA04

Project: JFOS SHEET

GC Column: ZB5

ID: 0.53 (mm)

Instrument ID: ECD7

Init. Calib. Date: 07/21/14

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

					IS1		IS2	
					AREA	RT	AREA	RT
				======		======	=======	=====
			ICAL	ICAL MIDPT		2.698	3289877	14.795
			UPPER	LIMIT	9201704	2.798	6579754	14.895
			LOWER	LIMIT	2300426	2.598	1644938	14.695
1	CLIENT	LAB	DATE		IS1		IS2	-
	SAMPLE NO.	SAMPLE ID	ANALYZED	TIME	AREA	RT	AREA	RT
	========	=======================================		======				
01		AR1248	09/22/14	1228	4600852	2.698	3289877	14.795
02		AR1660	09/22/14	1250	4083904	2.703	3054108	14.794
03	SSP-C-201409	ZA04A	09/22/14	1334	5102808	2.703	3823223	14.794
04		AR1254	09/22/14	1356	4570674	2.701	3500008	14.794
05		AR1660	09/22/14	1418	4116903	2.707	3239228	14.795
							İ	İİ

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min

IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

ZAUS: USUS2

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FORM VIII PCB

ZAUT: 00053

FORM 8 PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC

Client: JORGENSEN

ARI Job No.: ZA04

Project: JFOS SHEET

GC Column: ZB35 ID: 0.53(mm)

Instrument ID: ECD7

Init. Calib. Date: 07/21/14

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

					IS1		IS2	
			İ		AREA	RT	AREA	RT
			232000					======
	•		ICAL	MIDPT	7773978	3.059	5890389	15.132
			UPPER	LIMIT	15547956	3.159	11780778	15.232
			LOWER	LIMIT	3886989	2.959	2945194	15.032
					ll			
	CLIENT	LAB	DATE		IS1		IS2	
	SAMPLE NO.	SAMPLE ID	ANALYZED	TIME	AREA	RT	AREA	RT
[=========	=======================================	========	=====	======	======	========	======
01		AR1248	09/22/14	1228	7773978	3.059	5890389	15.132
02		AR1660	09/22/14	1250	6817080	3.066	5117289	15.132
03	SSP-C-201409	ZA04A	09/22/14	1334	10607250	3.066	6539926	15.132
04		AR1254	09/22/14	1356	8290732	3.065	5797888	15.132
05		AR1660	09/22/14	1418	6966053	3.069	5353797	15.131
					İ		ĺ	

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min

IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

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FORM VIII PCB

APPENDIX C DATA VALIDATION REPORT

Data Validation Report

Jorgensen Forge Outfall Site – Sheet Pile Residue 8531 East Marginal Way South Seattle, Washington

Laboratory Project Number: YY33

Prepared for:

SoundEarth Strategies, Inc.

2811 Fairview Ave East, Suite 2000 Seattle, Washington 98102

Prepared by:

Pyron Environmental, Inc.

3530 32nd Way, NW Olympia, WA 98502

	mitulin			
Approved By:	0.0	Date:	9/15/2014	
,	Mingta Lin, Senior Project Chemist			

ACRONYMS

% percent

%D percent difference

%**D**_f percent drift

%R percent recovery

%RSD percent relative standard deviation

ARI Analytical Resources, Inc.

CCV continuing calibration verification

CF calibration factor

CLP U.S. EPA Contract Laboratory Program

coc chain-of-custody

ECD electron capture detector

EPA U.S. Environmental Protection Agency

ICAL initial calibration

ICV initial calibration verification

LCS laboratory control sample

MDL method detection limit

NFGs CLP National Functional Guidelines for Data Review (EPA 2008)

PCB polychlorinated biphenyl

QA/QC quality assurance/quality control

QAPP quality assurance project plan

RF response factor
RL reporting limit

RPD relative percent difference

SDG sample delivery group

INTRODUCTION

This report presents and discusses findings of the data validation performed on analytical data for wipe samples collected during September 2014 for the referenced project. The laboratory report validated herein was submitted by Analytical Resources, Inc. (AR) in Tukwila, Washington.

A Stage 2B (as defined in EPA 2009) data validation was performed on these laboratory reports. The validation followed the procedures specified in USEPA CLP Functional Guidelines ([NFGs], EPA 2008), with modifications to accommodate project and analytical method requirements. The numerical quality assurance/quality control (QA/QC) criteria applied to the validation were in accordance with those specified in the quality assurance project plan ([QAPP], Floyd|Snider, 2010), as modified in the Basis of Design Report (SoundEarth, 2013) and the current performance-based control limits established by the laboratory (laboratory control limits). Instrument calibration, frequency of QC analyses, and analytical sequence requirements were evaluated against the respective analytical methods.

Validation findings are discussed in each section pertinent to the QC parameter for each type of analysis. Qualified data with applied data qualifiers are summarized in the **Summary** section at the end of this report. Samples and the associated analyses validated herein are summarized as follows:

Field Sample ID	Laboratory Sample ID	Sampling Date	Sample Type	Analysis PCB Aroclors
SSP-W-201 40829	YY33A	8/29/14	Wipe	· x
SSP-S-201 40829	YY33B	8/29/14	Wipe	Х
SSP-N-201 40829	YY33C	8/29/14	Wipe	Х

Notes:

PCBs – Polychlorinated biphenyl

X – The analysis was requested and performed on the sample.

The analytical parameters requested for the samples, the respective analytical methods, and the analytical laboratories are summarized below:

Parameter	Analytical Method	Analytical Laboratory
PCB Aroclors	SW846 Method 8082A	Analytical Resources, Inc. (ARI) Tukwila, Washington

Note: SW846 - *USEPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,* SW-846, Third Edition, December 1996.

DATA VALIDATION FINDINGS

1. PCB Aroclors (EPA Method SW8082A)

1.1 Sample Management and Holding Times

No anomalies were identified in relation to sample preservation, handling, and transport as discussed in Section 1.1.

Wipe samples should be extracted within 14 days of collection. Sample extracts should be analyzed within 40 days of extraction. All samples were extracted and analyzed within the required holding times.

1.2 Initial Calibration

The method requires that (1) a minimum of 5-point calibration be performed using the mixture of Aroclor 1016 and 1260, (2) a single-point calibration be performed for the other five Aroclors to establish calibration factors (CFs) and for Aroclor pattern recognition, (3) at least 3 peaks (preferably 5 peaks) must be chosen for each Aroclor for characterization, (4) the %RSD values of Aroclor 1016 and 1260 CFs must be ≤20%, and (5) if dual column analysis is chosen, both columns should meet the requirements. All ICALs met the requirements.

1.3 Calibration Verification

Calibration verifications were performed at the required frequency, at the beginning and end of analytical sequence within a 12-hour shift or 20 samples, whichever is more frequent. All %D values were within ±20%.

1.4 Blanks

Method Blank: Method blanks were prepared and analyzed as required. PCB Aroclors were not detected at or above the reporting limits (RLs) in the method blank.

1.5 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. All surrogate spike %R values were within the laboratory control limits.

1.6 Laboratory Control Sample (LCS)

LCS analyses were performed as required by the method. All %R values were within the laboratory control limits.

1.7 Method Reporting Limits

Sample-specific RLs were supported with adequate initial calibration concentrations. All three samples required dilution for the elevated levels of Aroclor 1254 and/or Aroclor 1260; the RLs were elevated accordingly. Aroclor 1254 nd Aroclor 1260 results for all samples were to be reported from the dilution analyses, where all other Aroclors reported from the initial analyses.

1.8 Overall Assessment of PCB Aroclors Data Usability

Note that Aroclor 1254 and Aroclor 1260 were present in all samples. Due to the possible overlapping congeners between Aroclor groups, the reported values for these Aroclors might have been over-estimated.

PCB Aroclor data are of known quality and acceptable for use, as qualified.

SUMMARY

Table I. Data Affected by QC Anomalies

Laboratory ID	Sample ID	Analyte	Qualifier	Qualified Reason	Report Section
YY33A YY33B YY33C	SSP-W-201 40829 SSP-S-201 40829 SSP-N-201 40829 (Initial Analysis)	Aroclor 1254 Aroclor 1260	DNR	Analyte concentration exceeded instrument calibration range; report from dilution analysis.	1.7
YY33A YY33B YY33C	SSP-W-201 40829 SSP-S-201 40829 SSP-N-201 40829 (Dilution Analysis)	Aroclor 1016 Aroclor 1221 Aroclor 1232 Aroclor 1242 Aroclor 1248 Aroclor 1262 Aroclor 1268	DNR	Report from initial analysis in favor of the lower detection limit.	1.7

Table II. Data Qualifier Definition

Data Qualifier	Definition
DNR	Do not report. The result was to be reported from an alternative analysis.

REFERENCES

- USEPA Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use, January 13 2009, EPA 540-R-08-005.
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, Office of Superfund Remediation and Technical Innovation, U.S. Environmental Protection Agency, June 2008, USEPA-540-R-08-01.
- USEPA Test Methods for Evaluating Solid Waste (SW-846). Third Edition and Revised Update IIIA.

 Office of Solid Waste and Emergency Response, Washington, D.C. April 1998.
- Jorgensen Forge Outfall Site Seattle, Washington Source Control Action 15-inch and 24-inch Pipes Cleanout Work Plan, Appendix B Sampling and Analysis Plan/Quality Assurance Project Plan, Floyd Snider, December 17, 2010. & Modification (SoundEarth Strategies, Inc., October 2013).